Amplify Desmos Math

Grade 6

Additional Practice
Student Resources

About Amplify

Amplify is dedicated to collaborating with educators to create learning experiences that are rigorous and riveting for all students. Amplify creates K–12 core and supplemental curriculum, assessment, and intervention programs for today's students.

A pioneer in K–12 education since 2000, Amplify is leading the way in next-generation curriculum and assessment. All of our programs provide teachers with powerful tools that help them understand and respond to the needs of every student.

Amplify gratefully acknowledges the work of distinguished program advisors from the English Learners Success Forum (ELSF), who have been integral in the development of Amplify Desmos Math. ELSF is a 501(c)(3) nonprofit organization whose mission is to expand educational equity for multilingual learners by increasing the supply of high-quality instructional materials that center their cultural and linguistic assets.

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Grade 6 | Unit 1

Additional Practice

Practice Problems

Name: ..... Date: ..... Period: .....

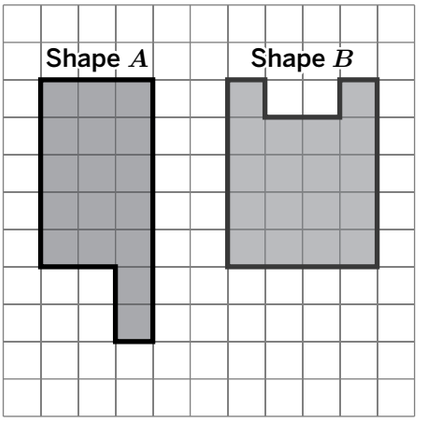
Additional Practice 1.01

1. Which shape has a greater area? Show or explain your thinking.

A. Shape A

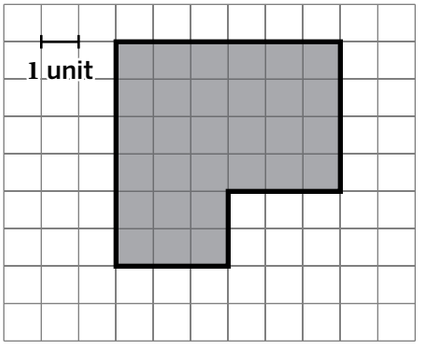
B. Shape B

C. Shape C

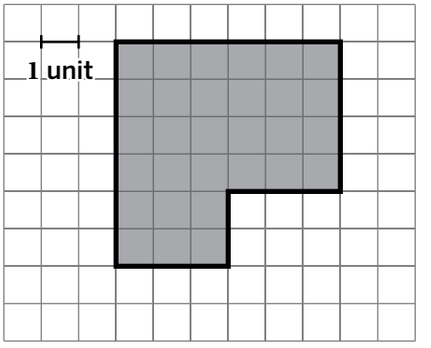


Problems 2–4. Here is a new shape.

2. Determine the area of the shape. Show or explain your thinking.

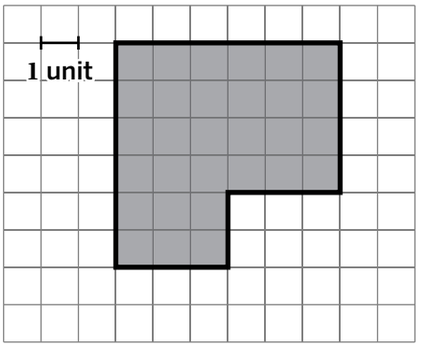


3. Show or describe another way to determine the area of this shape.

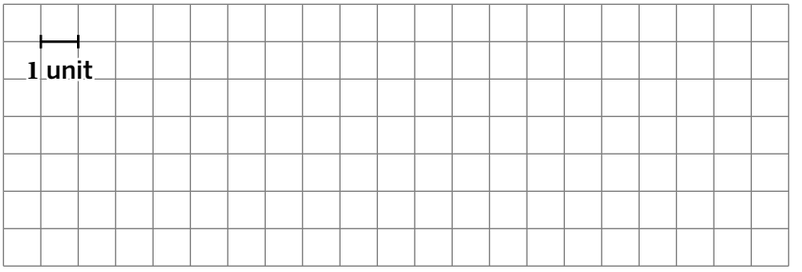


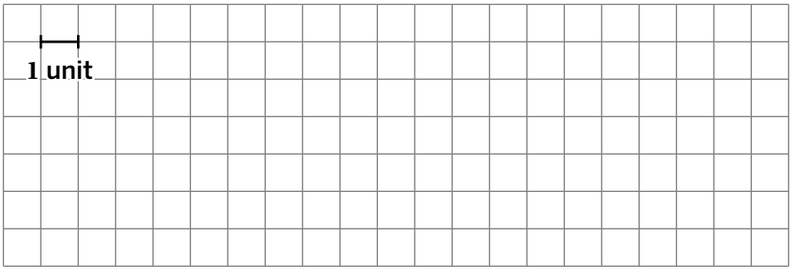
Name: ..... Date: ..... Period: .....

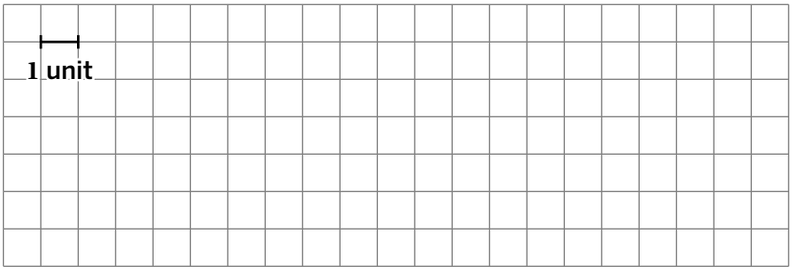
4. Show or describe how you would change this shape so it has an area of 20 square units.



5. Draw *three* different quadrilaterals, each with an area of 24 square units. Each square in this grid has an area of 1 square unit.





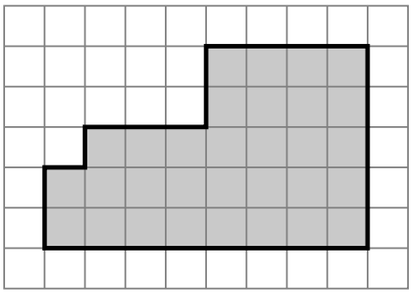


Name: ..... Date: ..... Period: .....

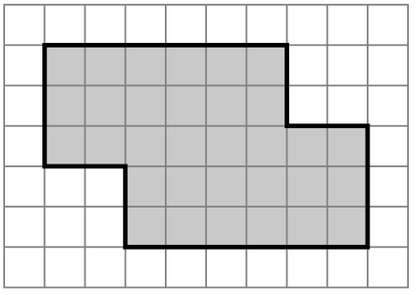
Additional Practice 1.02

1. Determine the total area of the shaded region in each figure.

a

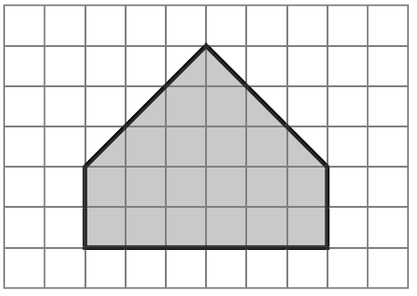


b

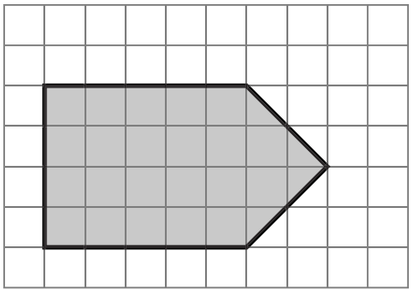


2. Determine the total area of the shaded region in each figure.

a

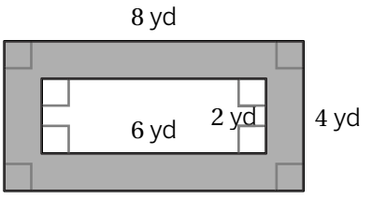


b

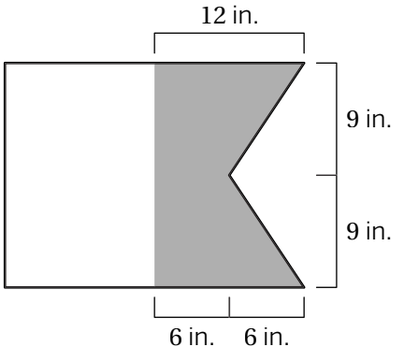


Name: ..... Date: ..... Period: .....

3. Determine the total area of the shaded region. Show your thinking.



4. A maritime flag representing the letter *A* is shown. What is the area of the shaded part of the flag? Show your thinking.

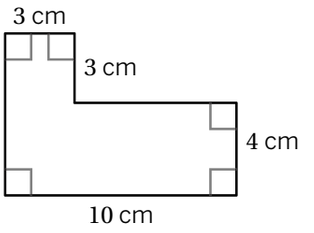


5. Two gardens have very different shapes. Clare said that both gardens have the same area. Do you agree with Clare? Explain your thinking.

Garden A

Garden B

6. Clare calculated the area of this figure. Her work is shown. Is Clare correct? Explain your thinking.



Clare's work:

$(10 \times 4) - (3 \times 3)$

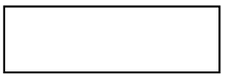
$= 40 - 9$

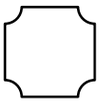
$= 31 \text{ cm}^2$

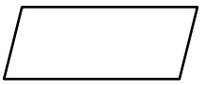
Name: ..... Date: ..... Period: .....

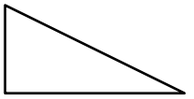
Additional Practice 1.03

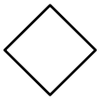
1. Select *all* of the polygons that are parallelograms.

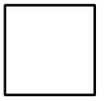
☐ **A.** 

☐ **B.** 

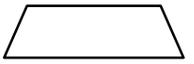
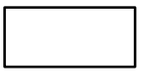
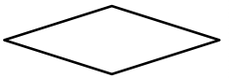
☐ **C.** 

☐ **D.** 

☐ **E.** 

☐ **F.** 

2. Determine whether each figure is a parallelogram. Write *yes* or *no*. Explain your thinking.

Figure	Parallelogram? (yes/no)	Explanation
a 		
b 		
c 		
d 		

3. Determine which statements about parallelograms are true. Select *all* that apply.

☐ **A.** A parallelogram can be rearranged to form a rectangle.

☐ **B.** A parallelogram has one pair of parallel sides.

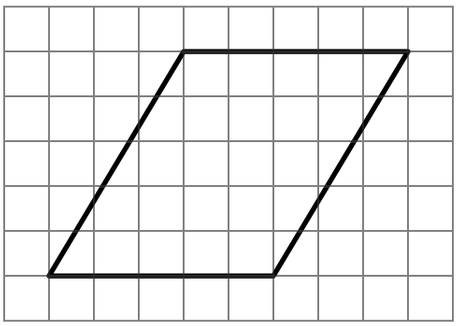
☐ **C.** A parallelogram can have more than four sides.

☐ **D.** Each pair of opposite sides have the same length.

☐ **E.** A square is a parallelogram.

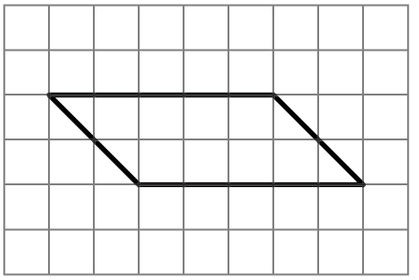
Name: ..... Date: ..... Period: .....

4. Decompose and rearrange this parallelogram to form a rectangle. What is the area of the parallelogram? Show your thinking.

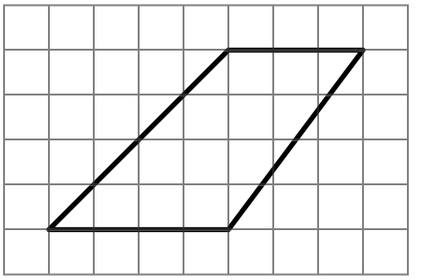


5. Decompose and rearrange each parallelogram to form a rectangle. Determine the area of each parallelogram. Show your thinking.

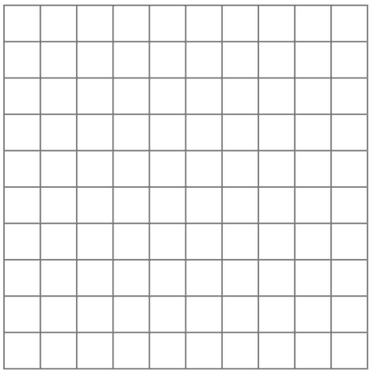
a



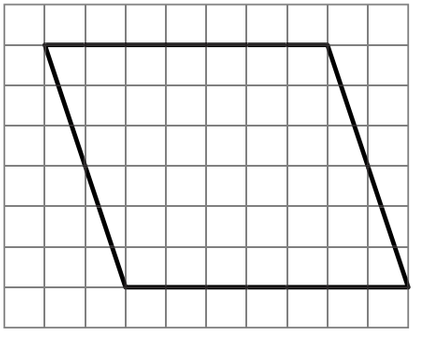
b



6. Draw a rectangle on the grid that has an area of 10 square units. Then decompose and rearrange the pieces of your rectangle to draw a parallelogram on the grid that has the same area. Show your thinking.



7. Han says he can determine the area of this parallelogram by cutting part of the left side and moving it to the right side to form a rectangle, and that the area of this parallelogram is 36 square units. Do you agree with Han? Explain your thinking.



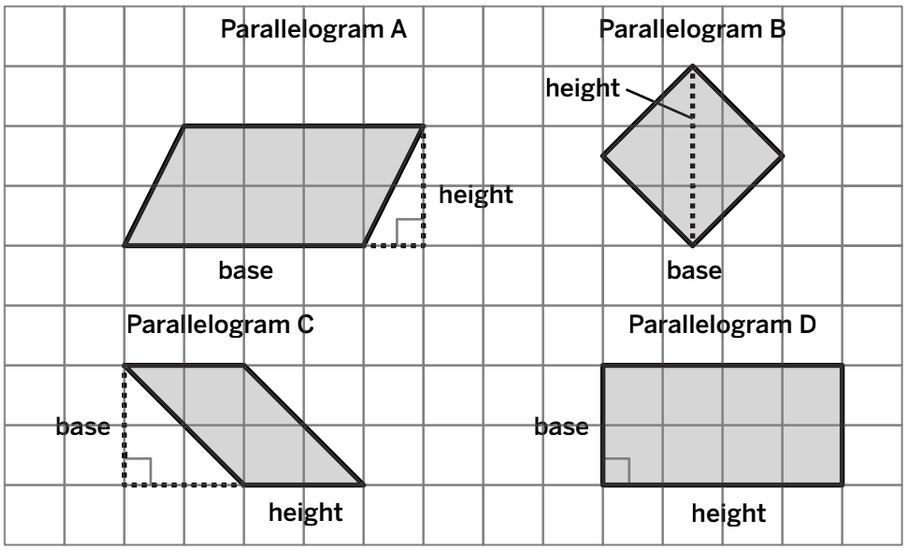
Name: ..... Date: ..... Period: .....

Additional Practice 1.04

1. Determine which statements are true about the base and height of a parallelogram. Select *all* that apply.

- ☐ **A.** A height can only be drawn outside a parallelogram.
- ☐ **B.** A height can only be drawn at a $90°$ angle related to the base.
- ☐ **C.** For a given base, there is one way to draw a corresponding height.
- ☐ **D.** A base can be any side of a parallelogram.
- ☐ **E.** A base and its corresponding height must be parallel to each other.

Refer to these parallelograms for Problem 2–3.



2. Which parallelograms have a correctly labeled height for the given base? Select *all* that apply.

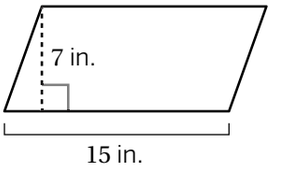
- ☐ **A.** Parallelogram A
- ☐ **B.** Parallelogram B
- ☐ **C.** Parallelogram C
- ☐ **D.** Parallelogram D

3. Determine the area of each parallelogram.

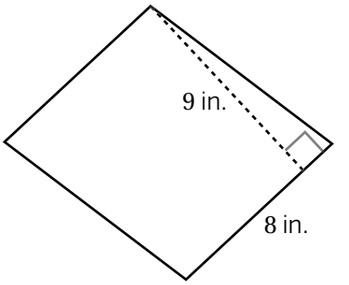
- **a** Parallelogram A
- **b** Parallelogram B
- **c** Parallelogram C
- **d** Parallelogram D

Name: ..... Date: ..... Period: .....

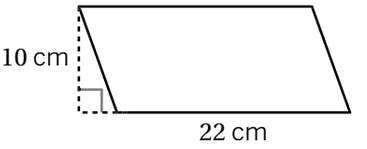
4. Write an expression that can be used to calculate the area of the parallelogram. Then use the expression to determine the area.



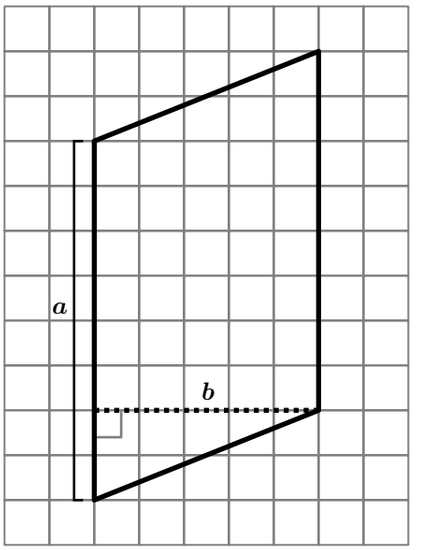
5. Write an expression that can be used to calculate the area of the parallelogram. Then use the expression to determine the area.



6. Write an expression that can be used to calculate the area of the parallelogram. Then use the expression to determine the area.



Use the parallelogram for Problems 7–8.



7. Bard claims that this parallelogram has a base, b, of 5 units, and a height, a, of 8 units. Is Bard correct? Explain your thinking.

8. Determine the area of the parallelogram. Show your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 1.05

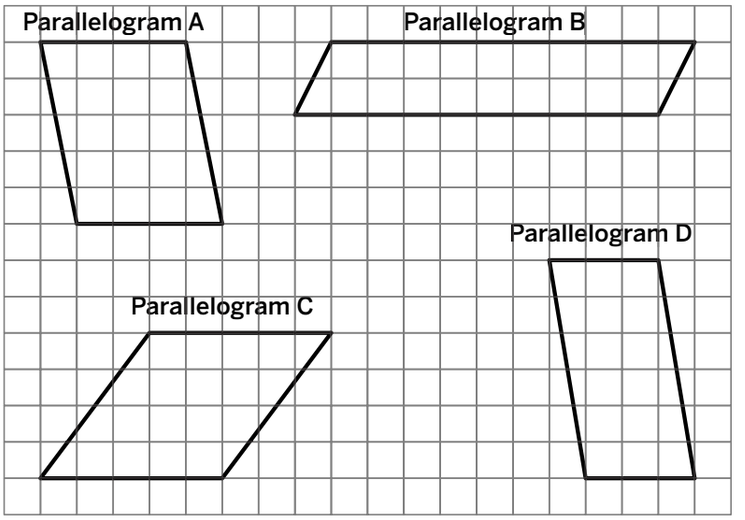
1. Three of these parallelograms have the same area. Which parallelogram has a *different* area than the others?

A. Parallelogram A

B. Parallelogram B

C. Parallelogram C

D. Parallelogram D



2. The base lengths b and corresponding heights h of four different parallelograms are listed. Which base-height pair represents the parallelogram with the greatest area?

A. $b = 8, h = 3.2$

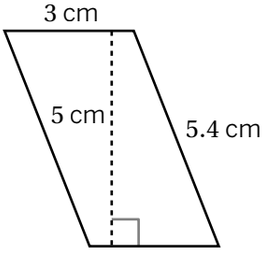
B. $b = 5.6, h = 4$

C. $b = 10, h = 2.6$

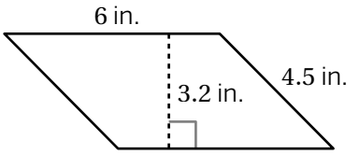
D. $b = 7.4, h = 4$

3. Determine the area of each parallelogram. Show your thinking.

a



b



4. The base lengths b and corresponding heights h are listed for two different parallelograms. Determine the area of each parallelogram. Show your thinking.

a $b = 12.5$ in., $h = 9$ in.

b $b = 6$ cm, $h = 5.5$ cm

Name: ..... Date: ..... Period: .....

5. The base lengths b and corresponding areas A of four different parallelograms are listed. Determine the height of each parallelogram. Show your thinking.

a $b = 12$, $A = 84$

b $b = 6$, $A = 54$

c $b = 5.5$, $A = 33$

d $b = 8.2$, $A = 28.7$

6. The heights h and corresponding areas A of four different parallelograms are listed. Determine the length of the base of each parallelogram. Show your thinking.

a $h = 4$, $A = 16$

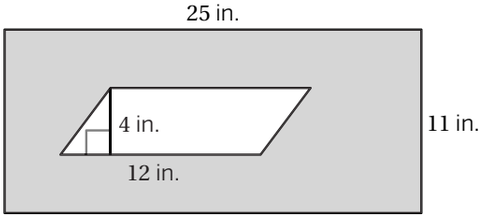
b $h = 7$, $A = 35$

c $h = 2.5$, $A = 10$

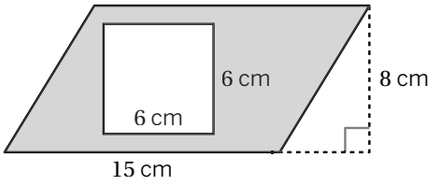
d $h = 8$, $A = 28$

7. Determine the area of the shaded region in each figure. Show your thinking.

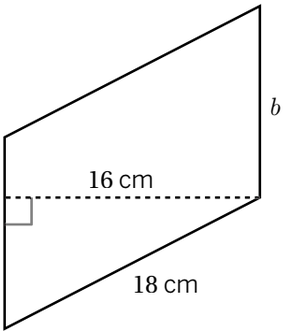
a



b



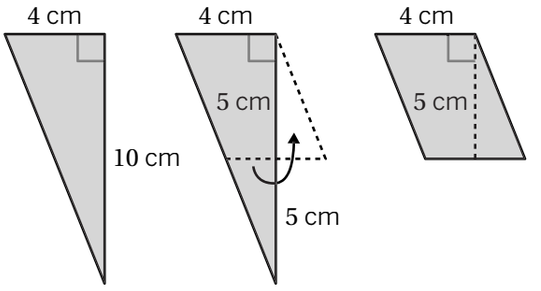
8. The parallelogram shown has an area of 144 cm^2. Mai claims the length of the base b is 8 cm. Do you agree with Mai? Explain your thinking.



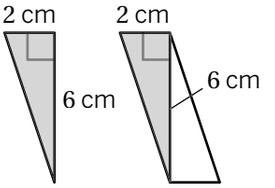
Name: ..... Date: ..... Period: .....

Additional Practice 1.06

1. To determine the area of this triangle, Jada drew a line through the midpoints of the two longer sides of the triangle, which decomposed the triangle into a trapezoid and a smaller triangle. She then rearranged the two shapes to form a parallelogram. Explain how Jada could use her parallelogram to determine the area of the triangle.

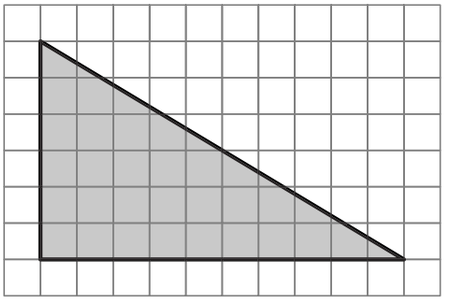


2. To determine the area of this triangle, Lin used two identical copies of a triangle to compose a different parallelogram. Explain how Lin could use her parallelogram to determine the area of the triangle.

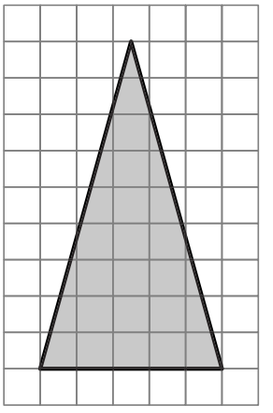


3. Determine the area of each triangle. Show your thinking.

a



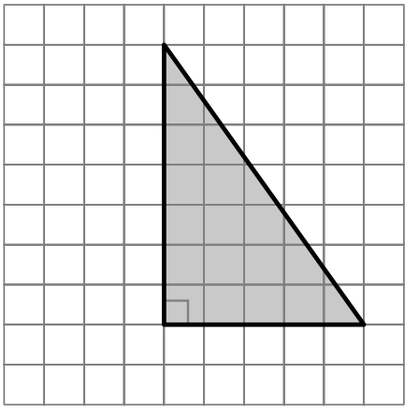
b



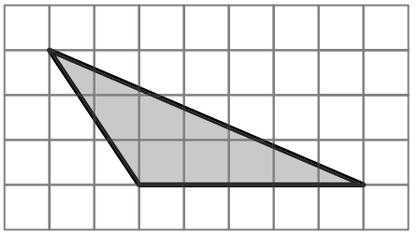
Name: ..... Date: ..... Period: .....

For Problems 4–6, three different triangles are shown on grids. For each triangle, determine the area using one of the strategies from the lesson. Then show or explain your thinking for each triangle.

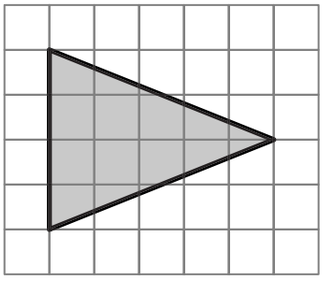
4.



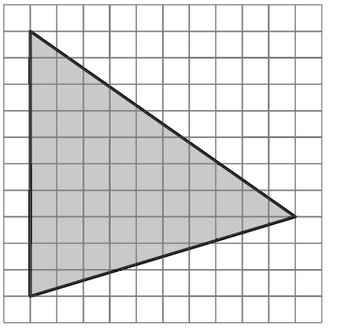
5.



6.



7. Shawn says the area of this triangle is 100 square units. Do you agree with Shawn? Explain your thinking.



Name: ..... Date: ..... Period: .....

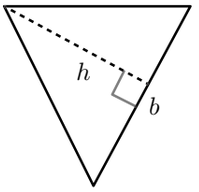
Additional Practice 1.07

1. Determine which statements are true about the base and height of a triangle. Select *all* that apply.

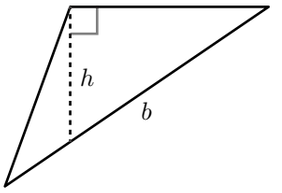
- ☐ **A.** Any side of a triangle can be a base.
- ☐ **B.** The height must be drawn inside the triangle.
- ☐ **C.** A height that corresponds to the base of a triangle is always perpendicular to the base.
- ☐ **D.** A height that corresponds to the base of a triangle is always drawn at a right angle to the base.
- ☐ **E.** For a chosen base, there is more than one possible height that can be drawn.

2. Which triangles have a correct height labeled for the given base? Select *all* that apply.

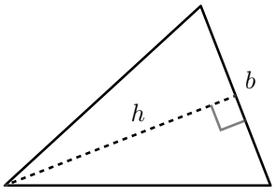
☐ **A.** **Triangle A**



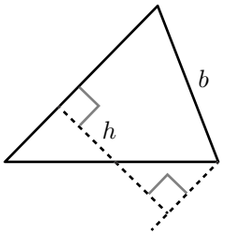
☐ **B.** **Triangle B**



☐ **C.** **Triangle C**

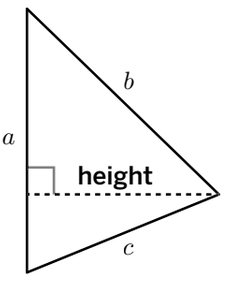


☐ **D.** **Triangle D**



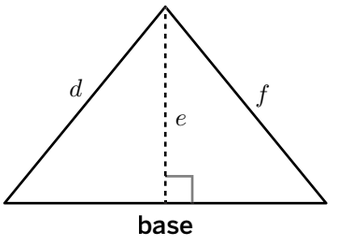
3. Which is a corresponding base for the indicated height of the triangle?

- **A.** Side a
- **B.** Side b
- **C.** Side c



Name: ..... Date: ..... Period: .....

4. Which is a corresponding height that corresponds to the given base of the triangle?

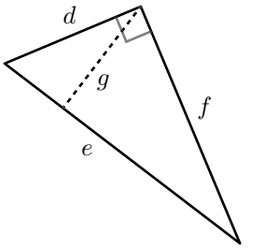


A. Side d

B. Side e

C. Side f

5. Name a corresponding height for each indicated base.

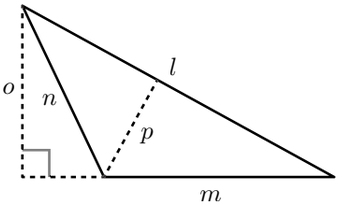


a Side d

b Side e

c Side f

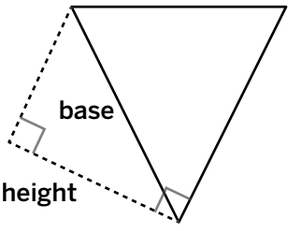
6. Name a corresponding height for each indicated base.



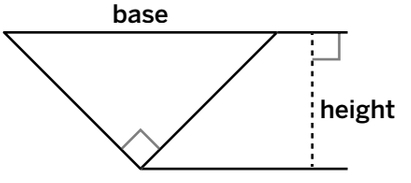
a Side l

b Side m

7. Tyler identified and labeled a base of the triangle and a corresponding height, as shown. Did Tyler correctly label the base and corresponding height? Explain your thinking.



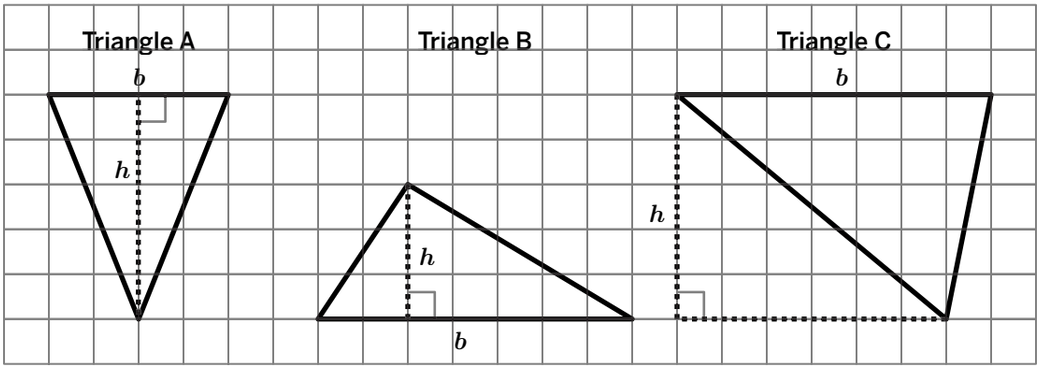
8. Elena identified and labeled a base of the triangle and a corresponding height, as shown. Did Elena correctly label the base and corresponding height? Explain your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 1.08

1. For each triangle, a base b and its corresponding height h are labeled.

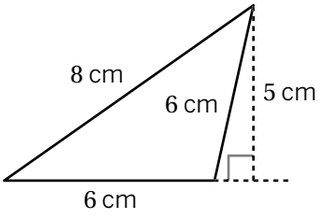


Complete the table for Triangles A, B, and C.

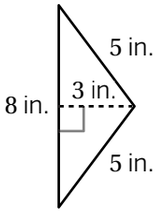
	Base (units)	Height (units)	Area (square units)
Triangle A			
Triangle B			
Triangle C			
Any triangle	b	h	

2. Determine the area of each triangle. Show your thinking.

a



b

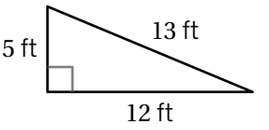


Name: ..... Date: ..... Period: .....

3. Complete the table by determining the area for each triangle, given the base and height.

	Base (units)	Height (units)	Area (square units)
Triangle A	8	6	
Triangle B	16	5	
Triangle C	3	3	
Triangle D	10.5	5	

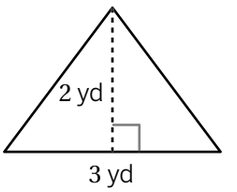
4. Determine the area of the triangle. Show your thinking.



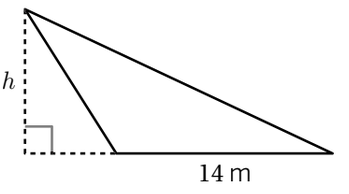
5. A triangle has a base with a length of 24.8 cm and a height of 16 cm. Determine the area.

6. A triangle has a base with a length of 7 in. and a height of 12 in. Determine its area.

7. A herb garden in Bard's backyard is shaped like a triangle, with the dimensions shown. Determine the area of the herb garden.



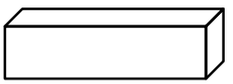
8. A triangle has a base that is 14 m long and an area of 70 m^2. What is the height of this triangle? Explain your thinking.



Name: ..... Date: ..... Period: .....

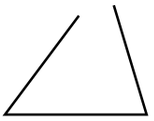
Additional Practice 1.09

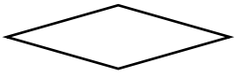
1. Select *all* the polygons.

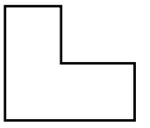
☐ **A.** 

☐ **B.** 

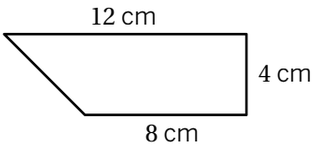
☐ **C.** 

☐ **D.** 

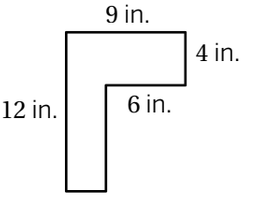
☐ **E.** 

☐ **F.** 

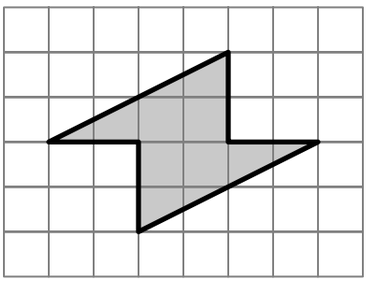
2. Decompose this polygon to determine its area. Explain your thinking.



3. Decompose this polygon to determine its area. Explain your thinking.

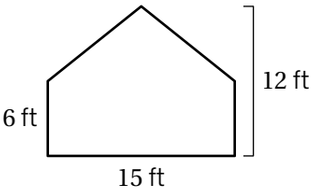


4. Decompose this polygon to determine its area. Explain your thinking.

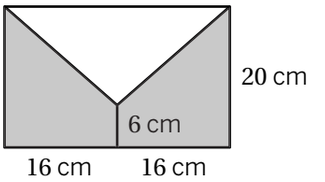


Name: ..... Date: ..... Period: .....

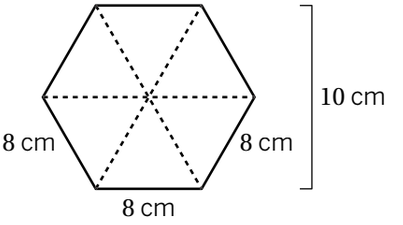
5. Decompose this polygon to determine its area. Explain your thinking.



6. Determine the area of the shaded region. Explain your thinking.



7. The hexagon has a side length of 8 cm. Diego determines the area of the hexagon as 20 cm^2. Is Diego correct? Explain your thinking.



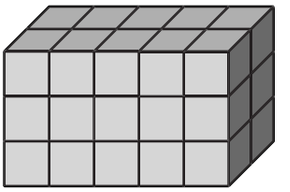
Name: ..... Date: ..... Period: .....

Additional Practice 1.10

1. Select *all* of the appropriate units that could describe surface area.

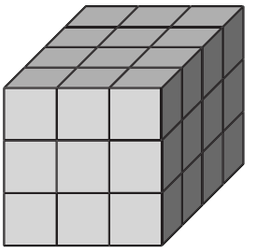
- ☐ **A.** Centimeters
- ☐ **B.** Square yards
- ☐ **C.** Square feet
- ☐ **D.** Cubic inches
- ☐ **E.** Cubic feet
- ☐ **F.** Square inches
- ☐ **G.** Square meters
- ☐ **H.** Meters

2. The rectangular prism shown is 3 units high, 2 units wide, and 5 units long. What is its surface area?

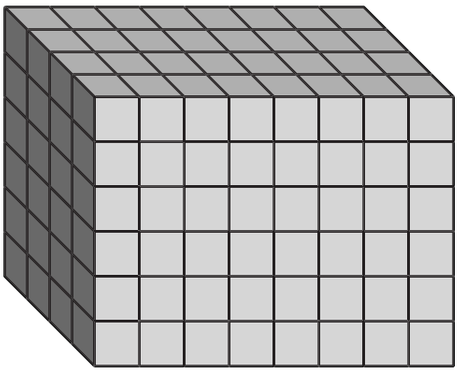


- **A.** 30 square units
- **B.** 31 square units
- **C.** 42 square units
- **D.** 62 square units

3. The rectangular prism shown is 3 units high, 4 units wide, and 3 units long. What is its surface area?

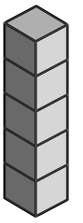


4. Refer to the rectangular prism shown. Determine the surface area.



Name: ..... Date: ..... Period: .....

5. The figure shown is a representation of a rectangular prism built by stacking unit cubes vertically. Determine the surface area in square units.



6. Is the surface area of Figure A *greater than*, *less than*, or *equal* to the surface area of Figure B? Explain your thinking.

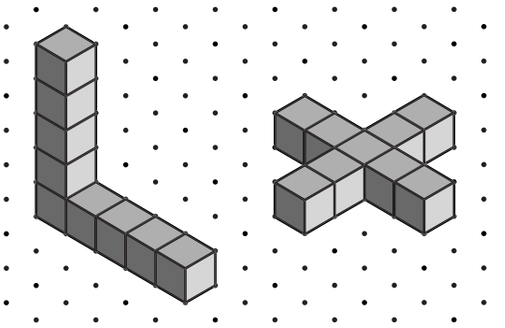
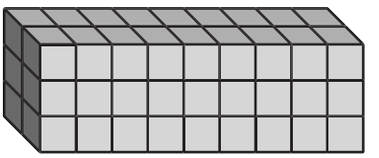


Figure A **Figure B**

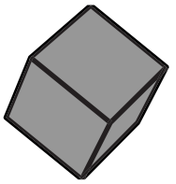
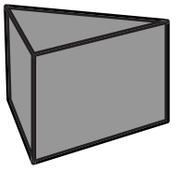
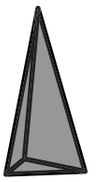
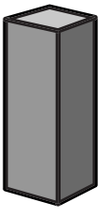
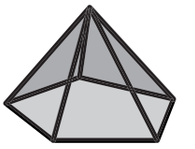
7. Noah says that the surface area of this rectangular prism is 90 square units. Is Noah correct? Explain your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 1.11

Problems 1–5: Here is a set of polyhedra.

Figure *A*	Figure *B*	Figure *C*	Figure *D*	Figure *E*
				

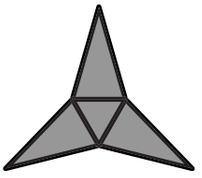
1. Which polyhedra are prisms?

2. Which polyhedra are pyramids?

3. What type of polyhedron is figure *D*?

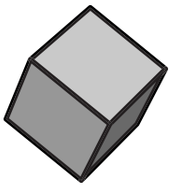
4. What type of polyhedron is figure *C*?

5. Which of these polyhedra could be created from this net?



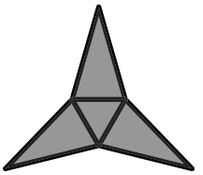
Name: ..... Date: ..... Period: .....

6. Here is a polyhedra.

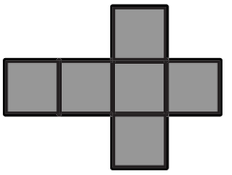


Select the correct net for this polyhedra.

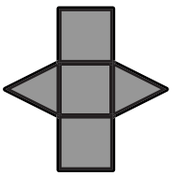
☐ **A.**



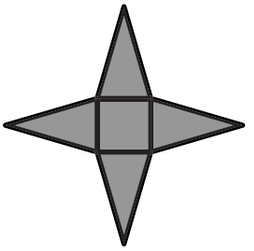
☐ **B.**



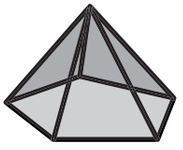
☐ **C.**



☐ **D.**



7. What polygons make up the faces of this three-dimensional figure?



Name: ..... Date: ..... Period: .....

Additional Practice 1.12

Problems 1–3. Compare the units for surface area and volume.

1. Select *all* the units that can be used to describe surface area.

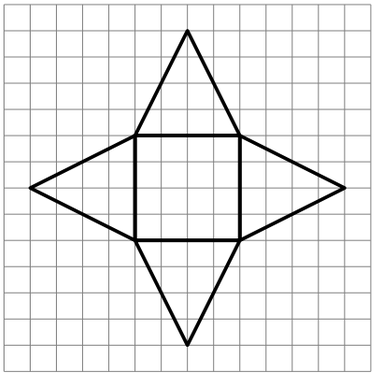
- ☐ **A.** Square inches
- ☐ **B.** Meters
- ☐ **C.** Centimeters
- ☐ **D.** Cubic feet
- ☐ **E.** Square meters
- ☐ **F.** Cubic inches

2. Select *all* the units that can be used to describe volume.

- ☐ **A.** Square inches
- ☐ **B.** Meters
- ☐ **C.** Centimeters
- ☐ **D.** Cubic feet
- ☐ **E.** Square meters
- ☐ **F.** Cubic inches

3. Compare your answers. What is the difference between the units you selected for surface area versus volume?

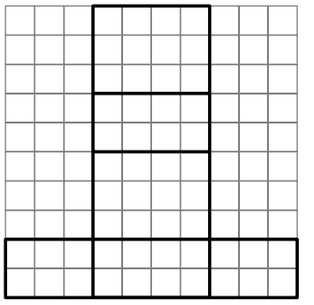
4. Here is a net.



Determine the surface area of this polyhedron (in square units). Show or explain your thinking.

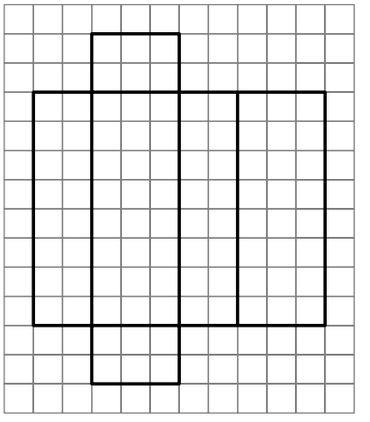
Name: ..... Date: ..... Period: .....

5. Refer to the net shown. Which expressions would be used to determine the surface area, in square units, of the rectangular prism that would be formed by the net? Select *all* that apply.

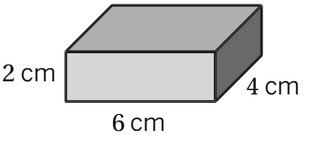


- ☐ **A.** $4 \cdot 3$
- ☐ **B.** $2 \cdot 6$
- ☐ **C.** $4 \cdot 5$
- ☐ **D.** $4 \cdot 2$
- ☐ **E.** $3 \cdot 5$
- ☐ **F.** $3 \cdot 2$

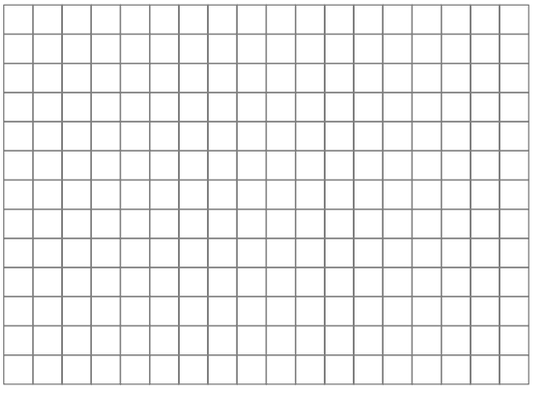
6. Refer to the net shown. Determine the surface area, in square units, of the rectangular prism that would be formed by this net. Show or explain your thinking.



7. Refer to the rectangular prism shown.



a Use the grid to draw a net for the prism. The length of one grid square is 1 cm. Label the top, bottom, left, right, front and back faces.

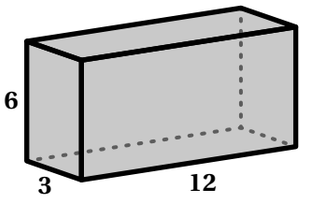


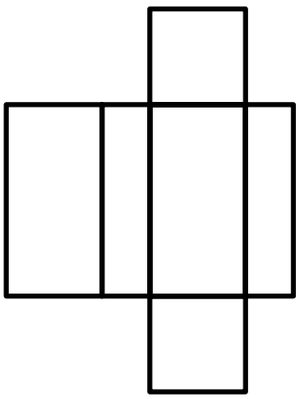
b Determine the surface area of the prism.

Name: ..... Date: ..... Period: .....

Additional Practice 1.13

Problems 1–2. Here is a rectangular prism and its matching net.

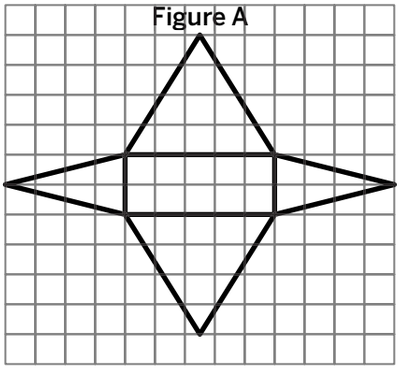




1. Use the rectangular prism to label all the lengths in this net.

2. Use the net to calculate the surface area in square units. Show or explain your thinking.

3. The net for Figure A is shown.



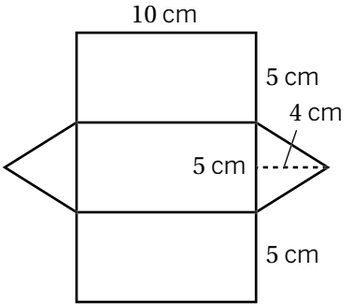
a Name the type of polyhedron that the net would form when assembled.

b Determine the surface area of the polyhedron.

Name: ..... Date: ..... Period: .....

4. The net for Figure B is shown.

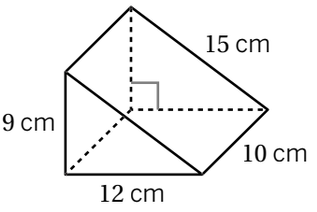
Figure B

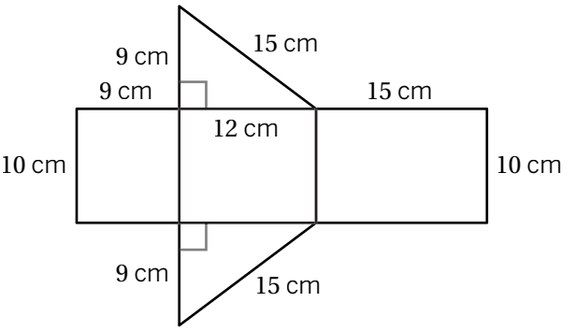


a Name the type of polyhedron that the net would form when assembled.

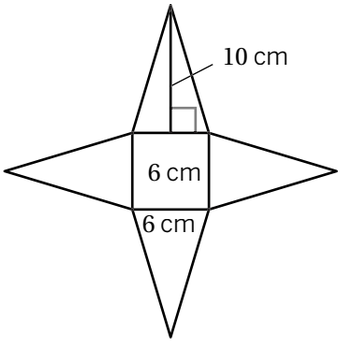
b Determine the surface area of the polyhedron.

5. The net of this triangular prism is shown. Determine the surface area of this figure.





6. Bard claims the surface area of this square pyramid is 192 cm^2. Is Bard correct? Explain your thinking.

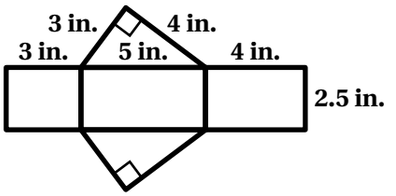


Name: Date: Period:

Additional Practice 1.14

1. Can the faces of a square prism be rectangles? Explain your thinking.

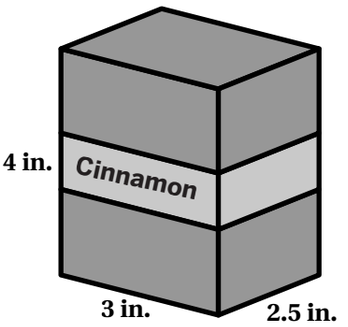
Problems 2–3. Here is a net



2. What three-dimensional figure can you create from this net?

3. What is the surface area of this figure?

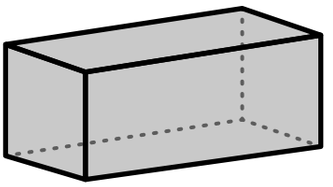
Problems 4–5. This container of cinnamon measures 3 inches by 2.5 inches by 4 inches.



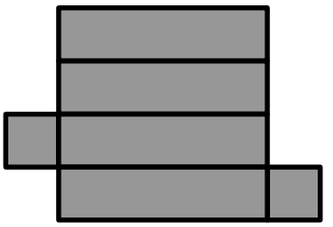
4. Estimate how much plastic the container uses. Explain your thinking.

5. Estimate how much cinnamon the container can hold. Explain your thinking.

Problems 6–7. An artist created a new marble sculpture for a park in town. The sculpture measures 5 meters tall, 10.5 meters long, and 5 meters wide.



6. Draw the net of this sculpture.



7. Determine the surface area of the marble sculpture.

Grade 6 | Unit 2

Additional Practice

Practice Problems

Name: _____ Date: _____ Period: _____

Additional Practice 2.01

1. In a bag of marbles, there are 8 red marbles, 6 white marbles, and 4 blue marbles.

a The ratio of red marbles to white marbles is _____ : _____.

b The ratio of blue marbles to white marbles is _____ : _____.

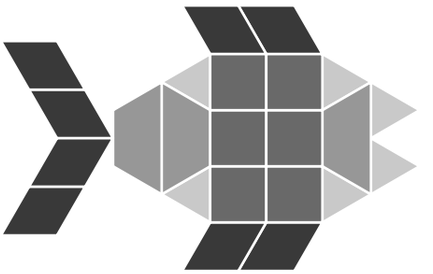
c For every _____ white marbles, there are _____ blue marbles.

d For every 2 red marbles, there is 1 _____.

2. A bowl has 12 blueberries, 6 raspberries, and 4 strawberries. Select *all* the statements that are true about the bowl of fruit.

- ☐ **A.** For every 3 raspberries, there are 12 blueberries.
- ☐ **B.** For every 3 blueberries, there is 1 strawberry.
- ☐ **C.** For every 4 strawberries, there are 6 raspberries.
- ☐ **D.** For every 6 blueberries, there are 4 strawberries.
- ☐ **E.** For every 2 strawberries, there are 6 blueberries.

Refer to the fish constructed from pattern blocks for Problems 3–4.



3. Complete each statement comparing the number of parallelograms and squares.

a There are _____ squares for every _____ parallelograms.

b The ratio of squares to parallelograms is _____ to _____.

c What is the ratio of parallelograms to squares? _____ to _____.

d For every 4 parallelograms, there are _____ squares.

4. Complete each statement comparing the number of triangles and trapezoids.

a The ratio of triangles to trapezoids is _____ : _____.

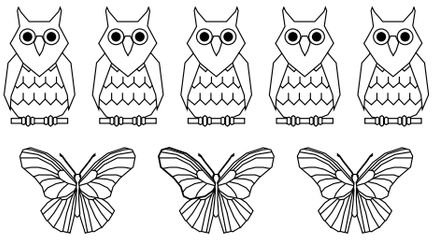
b The ratio of trapezoids to triangles is _____ : _____.

c For every 1 trapezoid, there are _____ triangles.

d For every 4 triangles, there are _____ trapezoids.

Name: ..... Date: ..... Period: .....

5. Complete the sentences to describe the ratio relationship between the collection of owls and butterflies.



a For every ..... owls, there are ..... butterflies.

b The ratio of owls to butterflies is .....

c For every ..... butterflies, there are ..... owls.

d The ratio of butterflies to owls is .....

6. Which statement is true about the number of human legs compared to the number of dog legs?

A. The ratio of the number of human legs to the number of dog legs is $4 : 2$.

B. For every 4 human legs, there are 2 dog legs.

C. The ratio of the number of dog legs to the number of human legs is $2 : 4$.

D. For every 2 human legs, there are 4 dog legs.

7. A convenience store sells 9 varieties of crackers, 8 varieties of scones, and 4 varieties of protein bars. Select *all* the statements that are true about the ratios of crackers, scones, and protein bars.

☐ **A.** There are 8 scones for every 4 protein bars.

☐ **B.** The ratio of crackers to protein bars is $9 : 4$.

☐ **C.** The ratio of scones to crackers is $9 : 8$.

☐ **D.** There are 2 scones for every 1 protein bar.

☐ **E.** The ratio of protein bars to crackers is 9 to 4.

☐ **F.** There are 8 scones for every 4 crackers.

☐ **G.** The ratio of crackers to scones is 9 to 8.

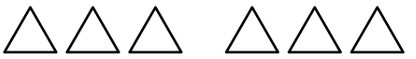
☐ **H.** There are 4 protein bars for every 8 scones and for every 9 crackers.

8. Tyler has 2 cube puzzles and 4 fidget spinners. He says, "For every 4 fidget spinners, I have 8 cube puzzles." Is Tyler correct? Write *yes* or *no*. Explain your thinking.

Name: _____ Date: _____ Period: _____

Additional Practice 2.02

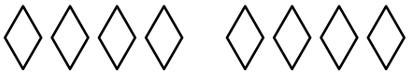
1. Use a ratio relationship to describe each diagram.

a **Triangles** 

Circles 

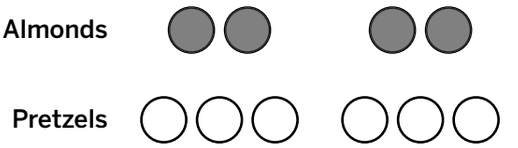
There are _____ triangles for every _____ circles.

b **Squares** 

Diamonds 

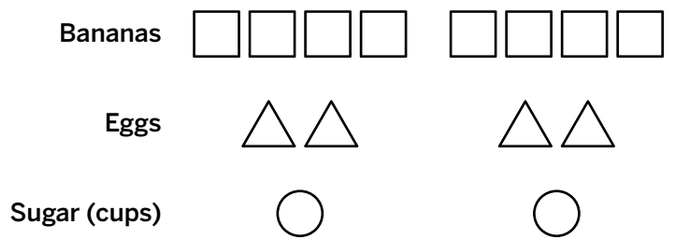
The ratio of diamonds to squares is _____ to _____.

2. The diagram represents the number of almonds to pretzels in a snack mix. Select *all* the statements that correctly describe the relationship between almonds and pretzels.



- ☐ **A.** The ratio of almonds to pretzels is 3 to 2.
- ☐ **B.** For every 2 pretzels, there are 3 almonds.
- ☐ **C.** The ratio of almonds to pretzels is $2 : 3$.
- ☐ **D.** For every 3 almonds, there are 2 pretzels.
- ☐ **E.** For every 6 pretzels, there are 2 almonds.
- ☐ **F.** The ratio of almonds to pretzels is $4 : 6$.

3. The diagram represents a recipe for banana bread, which says to combine 4 bananas with 2 eggs and 1 cup of sugar.



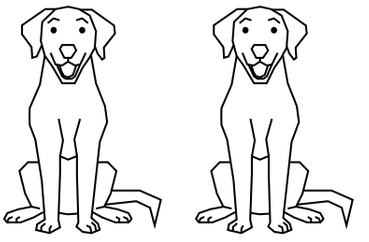
b The ratio of eggs to sugar is _____ : _____.

b The ratio of sugar to bananas is _____ to _____.

c There are _____ bananas for every 1 egg.

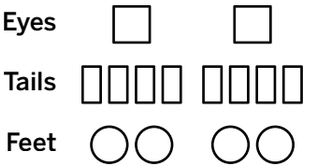
Name: ..... Date: ..... Period: .....

Refer to the picture of the 2 dogs for Problems 4–5.

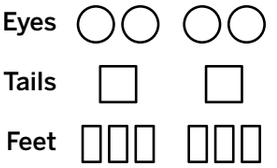


4. Which diagram represents the ratio relationship among the number of eyes, tails, and feet?

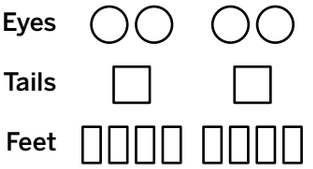
A.



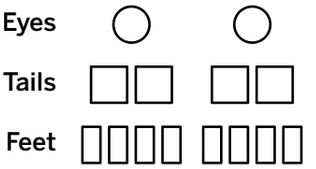
B.



C.



D.



5. Complete each statement.

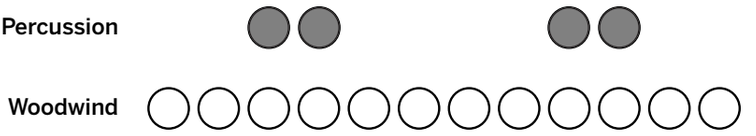
a The ratio of eyes to tails is ..... : .....

b The ratio of feet to tails is ..... to .....

c There are ..... eyes for every tail.

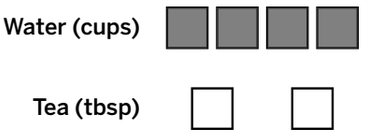
d There are ..... feet for every tail.

6. The diagram represents the number of percussion players and woodwind players in a school band.



Clare says the ratio of woodwind players to percussion players is $2 : 6$. Andre says the ratio of woodwind players to percussion players is $1 : 3$. Who is correct? Explain your thinking.

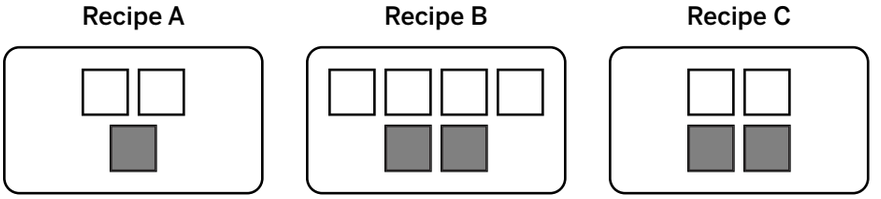
7. The diagram represents the number of cups of water and tablespoons of loose tea to make iced tea. Mai says the ratio of water to tea is $4 : 2$. What is another ratio that Mai could write for the ratio of water to tea? Explain your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 2.03

The diagrams represent three possible recipes for green dye using blue and yellow food coloring. Use these diagrams for Problems 1–4.



Key:

□ = 1 drop blue food coloring ■ = 1 drop yellow food coloring

1. Use the diagrams to complete each pair of statements.

a Recipe A uses ..... drop(s) of blue food coloring and ..... drop(s) of yellow food coloring.

The ratio of drops of blue to yellow in Recipe A is .....

b Recipe B uses ..... drop(s) of blue food coloring and ..... drop(s) of yellow food coloring.

The ratio of drops of blue to yellow in Recipe B is .....

c Recipe C uses ..... drop(s) of blue food coloring and ..... drop(s) of yellow food coloring.

The ratio of drops of blue to yellow in Recipe C is .....

2. Which statement is *true* about the ratios of the recipes?

A. The quantities in Recipe A are double that of Recipe B.

B. The quantities in Recipe B are double that of Recipe C.

C. The quantities in Recipe C are double that of Recipe A.

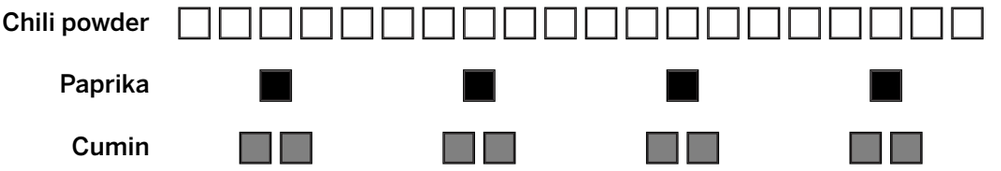
D. The quantities in Recipe B are double that of Recipe A.

3. To darken green paint, you can add more drops of blue. Which Recipe has the lightest shade of green paint? Explain your thinking.

4. What could be added to Recipe B so that the color will be the same as Recipe C?

Name: ..... Date: ..... Period: .....

5. A recipe for 1 batch of taco seasoning says, "Mix 5 parts chili powder, one part paprika, and two parts cumin." How many batches are represented by the diagram? Explain your thinking.



6. Kiran makes banana oatmeal pancakes by mixing 2 mashed bananas with 3 cups of oatmeal (along with some other ingredients).

a Draw a diagram that clearly represents doubling the recipe for banana oatmeal pancakes.

Bananas

Oatmeal (cups)

b Draw a diagram that clearly represents tripling the recipe for banana oatmeal pancakes.

Bananas

Oatmeal (cups)

7. In a recipe for sparkling orange juice, the ratio of cups of orange juice to cups of sparkling water is 2 : 1.

a Write the ratio of cups of orange juice to cups of sparkling water that represents a double batch. Show your thinking.

b Write the ratio of cups of orange juice to cups of sparkling water that represents a quadruple batch. Show your thinking.

8. When Elena makes one batch of hummingbird food, she mixes 4 cups of water with 1 cup of sugar, which is enough for one hummingbird feeder.

a If Elena has 5 hummingbird feeders in her yard, what is the ratio of cups of water to cups of sugar that she would use? Show your thinking.

b Elena says that if she has 3 hummingbird feeders in her yard, she would need 2 cups of sugar and 8 cups of water. Is Elena correct? Write *yes* or *no*. Explain your thinking.

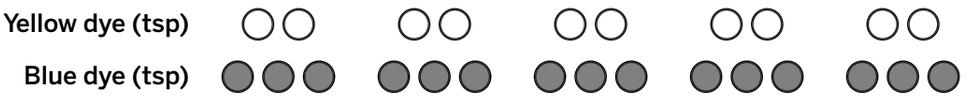
Name: ..... Date: ..... Period: .....

Additional Practice 2.04

1. The diagram shows a mixture of black paint and white paint needed for 3 batches of a particular gray paint.

What is the ratio of black paint to white paint, for 1 batch? Explain your thinking.

2. The diagram shows a mixture of yellow dye and blue dye needed for 5 batches of a particular green dye.



What is the ratio of blue dye to yellow dye, for 1 batch? Explain your thinking.

3. Bard makes pink paint by mixing 16 tbsp of white paint and 4 tbsp of red paint. Which of these mixtures produce the same pink paint as Bard's mixture, but in a smaller amount? Select *all* that apply.

- ☐ **A.** Mix 15 tbsp of white paint and 3 tbsp of red paint.
- ☐ **B.** For every tbsp of red paint, mix 4 tbsp of white paint.
- ☐ **C.** Mix tbsp of red paint and white paint in the ratio 4 : 1.
- ☐ **D.** For every 2 tbsp of red paint, mix 8 tbsp of white paint.
- ☐ **E.** Mix 8 tbsp of white paint with 4 tbsp of red paint.

4. Lin makes sparkling lemonade by mixing 12 cups of lemonade and 16 cups of sparkling water.

a What is the ratio of sparkling water to lemonade? Explain your answer.

b If Lin uses 6 cups of lemonade, how many cups of sparkling water should she use so the taste remains the same? Explain your answer.

c If Lin uses 4 cups of sparkling water, how many cups of lemonade should she use so the taste remains the same? Explain your answer.

Name: ..... Date: ..... Period: .....

5. To make 1 batch of pale yellow paint, Diego mixes 3 cups of yellow paint with 1 gallon of white paint. How could Diego make a mixture that is a darker tint of yellow than the pale yellow? Select *all* that apply.

- ☐ **A.** Add more white paint to the mixture.
- ☐ **B.** Mix 5 cups of yellow paint with 1 gallon of white paint.
- ☐ **C.** Mix 2 gallons of white paint with 3 cups of yellow paint.
- ☐ **D.** Add more yellow paint to the mixture.
- ☐ **E.** Mix 3 cups of yellow paint with one-half gallon of white paint.

6. When dyeing yarn, it is recommended that you use 750 ml of water for every 25 g of yarn fibers. Complete the table with the possible ratios for dyeing yarn.

Water (ml)	Yarn fibers (g)
750	25
150	
	1

7. To make a large batch of pancake mix, the directions say to use 40 cups of water and 28 cups of pancake mix.

a Diego only needs half the amount of pancake mix. What ratio would represent half of the recipe? Explain your thinking.

b Lin wants to use 8 cups of water and 7 cups of pancake mix. Is her ratio equivalent to the ratio in the directions? Explain your thinking.

8. Orange paint can be made by mixing 35 tsp of red paint and 14 tsp of yellow paint. Kiran and Priya each attempted to make a smaller amount of the same orange paint color. Diagrams that represent their color mixtures are shown.

Does either person's color mixture make the same orange color as the original orange paint? Write *yes* or *no*. Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.05

1. In an orchestra, the ratio of flutes to violas is $2 : 8$. Multiple orchestras are planning to combine to create a larger orchestra and they want to keep the ratio of instruments equivalent so the sound is balanced the same. Complete the table to show how many flutes and violas would be needed.

Flutes	Violas
2	8
5	
	72
	12
12	

2. In an orchestra, the ratio of first violins to harps is $3 : 1$. Multiple orchestras are planning to combine to create a larger orchestra and they want to keep the ratio of instruments equivalent so the sound is balanced the same. Complete the table to show how many first violins and harps would be needed.

First violins	Harps
3	1
15	
	8
	12
9	

3. In an orchestra, the ratio of French horns to trumpets is $4 : 3$. Which double number line correctly shows this ratio?

A. French horns: 0 3 6 9 12 15
Trumpets: 0 4 8 12 16 20

B. French horns: 0 4 8 12 16 20
Trumpets: 0 3 6 9 12 15

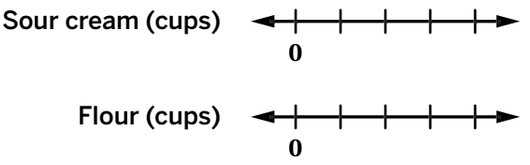
C. French horns: 0 1 2 3 4 5
Trumpets: 0 3 6 9 12 15

D. French horns: 0 2 4 6 8 10
Trumpets: 0 3 6 9 12 15

Name: ..... Date: ..... Period: .....

A recipe for one batch of blueberry muffins uses the ingredients shown in the table. Use this information for Problems 4–7.

4. Complete the double number line representing the amounts of sour cream and flour.



Ingredient	Amount
blueberries	$2\frac{1}{4}$ cups
sour cream	1 cup
salt	$\frac{1}{2}$ tsp
flour	2 cups
baking powder	3 tsp
sugar	1 cup

5. Bard plans on making several batches of blueberry muffins. Explain your thinking for each part.

a If Bard uses $2\frac{1}{2}$ tsp of salt, how many batches could be made?

b If Bard uses 12 tsp of baking powder, how many batches could be made?

6. Complete this table to show possible amounts of blueberries and sugar that could be used for larger batches of muffins that would have the same consistency and the same taste.

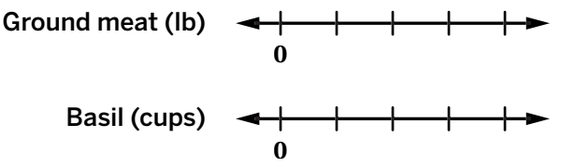
Blueberries (cups)	Sugar (cups)
	1
9	
	2
18	

7. Diego wants to make 3 batches of blueberry muffins. He says he will need $6\frac{1}{2}$ cups of blueberries, 6 cups of flour, and 3 tsp of salt. Is Diego correct? Write *yes* or *no*. Explain your thinking.

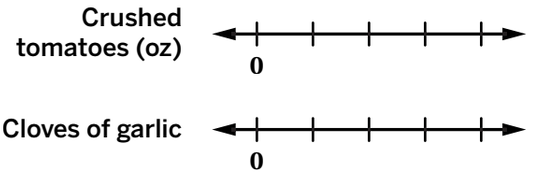
Name: ..... Date: ..... Period: .....

Additional Practice 2.06

1. One batch of spaghetti sauce contains 2 lb of ground meat and $\frac{1}{4}$ cups of fresh basil. Complete the double number line to show the amounts of ground meat and basil needed for 1, 2, 3, and 4 batches of spaghetti sauce.

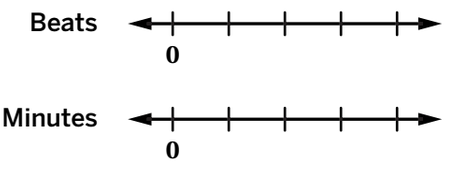


2. The same recipe for spaghetti sauce also contains 28 oz of crushed tomatoes and 3 cloves of garlic. Complete the double number line to show the amounts of crushed tomatoes and cloves of garlic needed for 1, 2, 3, and 4 batches of spaghetti sauce.



3. A certain song is 4 minutes and 45 seconds long and is played at an andante 76 bpm.

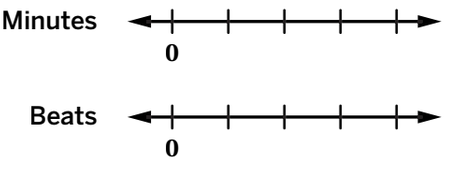
a Complete the double number line to show the number of beats for each passing minute up to 4 minutes.



b What is the ratio of beats to minutes that corresponds to 1 minute? Explain your thinking.

4. The song *Dance of the Sugar Plum Fairies* by Pyotr Ilyich Tchaikovsky is 4 minutes and 32 seconds long and is played at an allegro 149 bpm.

a Complete the double number line to show the number of beats for each passing minute up to 4 minutes.

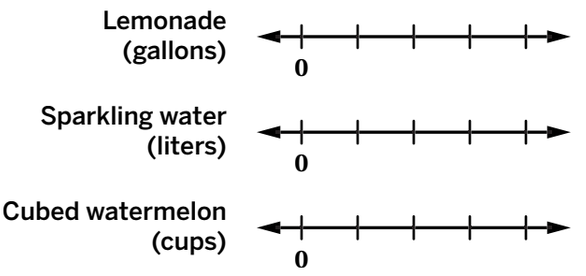


b What is the ratio of beats to minutes that corresponds to 1 minute? Explain your thinking.

Name: ..... Date: ..... Period: .....

5. A recipe for watermelon lemonade says, "Combine $\frac{1}{2}$ gallons of lemonade, 2 liters of sparkling water, and 4 cups of cubed watermelon."

a Complete the triple number line to show the amount of each ingredient in 1, 2, 3, and 4 batches of the recipe.



b If 10 cups of sparkling water are used with 18 cups of cubed watermelon, will the recipe taste the same? Write *yes* or *no*. Explain your thinking.

6. Determine the tempo in beats per minute (bpm) for each song. Explain your thinking.

a A 4-minute song containing 496 beats.

b A 2-minute song containing 92 beats.

c A 5-minute song containing 990 beats.

d A 3-minute song containing 327 beats.

7. A song has 54 beats per minute and is 3 minutes long. Shawn says the song has 18 total beats. Is Shawn correct? Write *yes* or *no*. Explain your thinking.
Hint: Consider using a double number line to help with your thinking.

8. A recipe for sparkling lemonade calls for $\frac{3}{4}$ cups of lemon juice, $\frac{1}{2}$ cups of sugar, and $1\frac{1}{2}$ cups of sparkling water. If Elena wants to make 4 batches of sparkling lemonade, how much of each ingredient will she need?
Hint: Consider using a double number line to help with your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.07

1. List all the multiples of each number, up to 100.

a 16

b 12

c 15

d 20

2. For the numbers 6 and 18, . . .

a Determine the first 6 multiples of 6.

b Determine the first 6 multiples of 18.

c Determine the common multiples of 6 and 18.

d Determine the LCM of 6 and 18.

3. For the numbers 3 and 4, determine . . .

a The first 8 multiples of 3.

b The first 8 multiples of 4.

c The common multiples of 3 and 4.

d The LCM of 3 and 4.

4. Determine the LCM for each pair of numbers. Explain your thinking.

a 9 and 11

b 8 and 5

c 6 and 10

d 8 and 12

Name: ..... Date: ..... Period: .....

5. Which are common multiples of 4 and 7? Select *all* that apply.

- ☐ **A.** 24
- ☐ **B.** 28
- ☐ **C.** 35
- ☐ **D.** 42
- ☐ **E.** 56

6. Consider different-colored lights that each blink at certain intervals of seconds. Explain your thinking for each part.

a A red light blinks every 5 seconds and a green light blinks every 6 seconds. List the first three multiples where these two lights will blink at the same time.

b A blue light blinks every 3 seconds and a yellow light blinks every 8 seconds. List the first three multiples where these two lights will blink at the same time.

7. At a local party store, paper dinner plates are sold in packages of 20 and paper dessert plates are sold in packages of 24. Explain your thinking for each part.

a What is the fewest number of packages of dinner plates and the fewest number of packages of dessert plates that can be purchased so that there will be the same number of plates of each?

Dinner plates: .....

Dessert plates: .....

b How many pairs of individual dinner plates and dessert plates can be made?

8. Han, Mai, and Priya found the least common multiple of 6, 7, and 10. Their responses are given below.

- Han says that the least common multiple is 70.
- Mai says that the least common multiple is 42.
- Priya says that the least common multiple is 210.

Who is correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.08

1. Determine *all* the factors of each number.

a 16

b 25

c 100

d 37

2. For the numbers 20 and 24, determine each of the following.

a The factors of 20.

b The factors of 24.

c The common factors of 20 and 24.

d The GCF of 20 and 24.

3. For the numbers 18 and 27, determine each of the following.

a The factors of 18.

b The factors of 27.

c The common factors of 18 and 27.

d The GCF of 18 and 27.

4. Determine the GCF for each pair of numbers. Explain your thinking.

a 33 and 15

b 8 and 32

c 45 and 54

d 35 and 21

Name: ..... Date: ..... Period: .....

5. Refer to the numbers 42 and 96.

a How many common factors do 42 and 96 have? Explain your thinking.

b What is the GCF of 42 and 96? Explain your thinking.

6. A teacher is making gift bags. Each bag is to be filled with pencils and erasers. The teacher has 40 pencils and 60 erasers to use. Each bag will have the same number of each item, with no items left over. What are some possibilities of pencils and erasers in the gift bags? Select *all* that apply.

- ☐ **A.** 10 bags with 4 pencils and 6 erasers
- ☐ **B.** 4 bags with 6 pencils and 4 erasers
- ☐ **C.** 20 bags with 2 pencils and 6 erasers
- ☐ **D.** 2 bags with 20 pencils and 30 erasers
- ☐ **E.** 5 bags with 8 pencils and 12 erasers

7. A middle school band has 72 sixth grade students and 54 seventh grade students. The band director wants to make groups of performers, with the same combination of sixth grade and seventh grade students in each group. She wants to form as many groups as possible.

a What is the greatest number of groups that could be formed? Explain your thinking.

b Using your answer from Problem 7a, how many sixth graders would be in each group?

c Using your answer from Problem 7a, how many seventh graders would be in each group?

8. Jada, Shawn, and Noah were all asked to determine the greatest common factor of 16, 72, and 80. Their responses are shown.

- Jada says that the greatest common factor is 16.
- Shawn says that the greatest common factor is 8.
- Noah says that the greatest common factor is 9.

Who is correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.09

1. There are 3 possible mixtures of a pink paint.
- Mixture A is made with 18 tsp of white paint and 12 tsp of red paint.
- Mixture B is made with 6 tsp of white paint and 5 tsp of red paint.
- Mixture C is made with 12 tsp of white paint and 10 tsp of red paint.

Which mixture is the *lightest* tint of pink paint? Explain your thinking.

2. Priya has 2 white marbles and 4 blue marbles. Lin has 4 white marbles and 16 blue marbles. Who has the greater ratio of white marbles to blue marbles? Explain your thinking.

A. Priya

B. Lin

C. They have the same ratio of white to blue marbles.

3. Kiran shops at a bulk store where he can purchase dry goods by the ounce.

a Determine the price per ounce for each item that Kiran buys.

Item	Price ($)	Number of ounces	Price per ounce ($)
Banana chips	9	36	
Macadamia nuts	16	8	
Dried mango	8	8	
Cinnamon pecans	18	24	
Pistachios	3.75	5	

b Which item has the least price per ounce? Explaining your thinking.

Name: Date: Period:

4. Noah's team won 10 games and lost 5 games. Tyler's team won 12 games and lost 4 games. Whose team had the greater ratios of wins to losses? Explain your thinking.

A. Noah's team

B. Tyler's team

C. Both teams have the same ratio of wins to losses.

5. Movie tickets cost different amounts depending on the day and time of the show.

- Bard paid $39 for 6 tickets.
- Andre paid $21.75 for 3 tickets.
- Mai paid $31.25 for 5 tickets.

Who paid the lowest price per ticket? Explain your thinking.

A. Bard

B. Andre

C. Mai

6. Diego swam 200 meters in 58 seconds. Han swam 300 meters in 87 seconds. Both swam at a constant speed. Who swam at a faster constant speed? Explain your thinking.

A. Diego

B. Han

C. They swam at the same speed.

7. Clare ran 3 miles in 27 minutes. Jada ran 5 miles in 40 minutes. Both ran at a constant speed. Did they run at the *same* constant speed? Write *yes* or *no*. Explain your thinking.

8. Shawn paid $11.25 for 2.5 lb of chicken. Lin paid $25.50 for 6 lb of chicken. Lin says she paid less per pound of chicken than Shawn. Is Lin correct? Write *yes* or *no*. Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.10

1. To make a fruit smoothie, Andre uses $\frac{1}{2}$ cups of almond milk and $1\frac{1}{2}$ cups of frozen berries. The table shows equivalent ratios of almond milk and frozen berries.

Almond milk (cups)	Frozen berries (cups)
$\frac{1}{2}$	$1\frac{1}{2}$
1	3
$1\frac{1}{2}$	$4\frac{1}{2}$
2	6

Which statements are *true* about the ratio of almond milk to frozen berries? Select *all* that apply.

- ☐ **A.** For every 3 cups of berries, there is 1 cup of almond milk.
- ☐ **B.** For every 2 cups of berries, there are 6 cups of almond milk.
- ☐ **C.** For every $1\frac{1}{2}$ cups of berries, there is 1 cup of almond milk.
- ☐ **D.** For every 1 cup of almond milk, there are 3 cups of berries.
- ☐ **E.** For every $\frac{1}{2}$ cups of almond milk, there are $1\frac{1}{2}$ cups of berries.

2. A particular pink paint is made by mixing 3 parts of red paint with 9 parts of white paint. Complete the table with the amount of red paint and white paint needed to make different amounts of the same shade of pink paint.

Red paint	White paint
1	
$\frac{1}{2}$	
	12
	6

Name: Date: Period:

3. In a recipe for waffles, there are $2\frac{1}{4}$ cups of flour for every 2 cups of milk. A family is making several batches of waffles. Determine how much of each ingredient the family will need. Consider using a table to help with your thinking.

a How many cups of milk are needed to make 3 batches of waffles?

b How many cups of flour are needed to make 3 batches of waffles?

c How many cups of milk are needed to make 5 batches of waffles?

d How many cups of flour are needed to make 6 batches of waffles?

4. A car travels at a constant speed and its distance traveled in 1, 2, and 3 hours is shown on the table. How far does the car travel in 8 hours? Explain your thinking.

Time (hours)	Distance (miles)
1	65
2	130
3	195

5. Complete the table to determine two equivalent ratios to $24 : 15$ with lesser values and two equivalent ratios with greater values.

24	15

6. A recipe for a batch of bran muffins calls for $\frac{3}{4}$ cup of brown sugar and 3 cups of bran cereal. Andre says that, if he triples the recipe, he will need $3\frac{3}{4}$ cups of brown sugar and 9 cups of bran cereal. Is Andre correct? Write *yes* or *no*. Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.11

1. Determine the missing number on the ratio table.

7	12
	48

2. A recipe calls for 2 lb of chicken and $3\frac{1}{2}$ cups of tomato sauce. Andre makes 3 batches of the recipe. Which gives the amounts needed for 3 batches?

A. 5 lb of chicken, 9 cups of tomato sauce

B. 5 lb of chicken, $10\frac{1}{2}$ cups of tomato sauce

C. 6 lb of chicken, 9 cups of tomato sauce

D. 6 lb of chicken, $10\frac{1}{2}$ cups of tomato sauce

3. A chef is pickling onions. He needs 12 gallons of white vinegar. The restaurant supply store sells 2 gallons of vinegar for $4.88, but allows customers to buy any amount of vinegar at the same rate. Which of the following ratios correctly represents the price of the vinegar? Select *all* that apply.

☐ **A.** 7 gallons to $14.64

☐ **B.** 14 gallons to $34.16

☐ **C.** 1 gallon to $2.44

☐ **D.** 20 gallons to $43.92

☐ **E.** 5 gallons to $12.20

4. A full-grown elephant drinks about 1,330 liters of water each week. Complete each ratio based on this information.

a ..... liters to 1 day

b 570 liters to ..... days

c ..... liters to 3 weeks

d 2,280 liters to ..... days

e ..... liters to 12 weeks

Name: Date: Period:

5. A caterer needs to buy 38 lb of potatoes for a catering event. It costs $\$6$ for 5 lb of potatoes at a restaurant supply store.

a Write a ratio for the price of the potatoes per pound.

b If all potatoes are sold at this rate, how much will the caterer pay for the potatoes they need? Explain your thinking.

6. A caterer also needs to buy 130 rolls for the catering event. A bakery sells rolls by the dozen where it costs $\$4.80$ for a dozen rolls.

a Write a ratio for the given information about the cost of the rolls.

b If all rolls are sold at the same rate, how much will the caterer pay for the rolls they need? Explain your thinking.

7. The directions for a shade of green paint say, "Mix 7 ml yellow paint with 3 ml blue paint." Han has 42 ml of yellow paint and 25 ml of blue paint. If Han wants to use all of the yellow paint, how much blue paint, if any, will he have left? Explain your thinking.

Note: Consider using this ratio table to help with your thinking.

Yellow (ml)	Blue (ml)

8. Mai is reading a 55-page book. She read the first 35 pages in 30 minutes. If she continues to read at the same rate, will she be able to complete this book in less than 1 hour? Write *yes* or *no*. Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.12

1. Clare reads 24 pages in 60 minutes. She spends the same amount of time per page. Consider using the table to help with your thinking as you solve each of the following problems.

Time (minutes)	Number of pages
60	24

a How many minutes does it take Clare to read 1 page?

b How many pages can Clare read in 1 minute?

2. Kiran is making personal pizzas. For 4 pizzas, he uses 6 cups of flour. Consider using the table to help with your thinking as you solve each of the following problems.

Number of pizzas	Flour (cups)
4	6

a How many cups of flour does Kiaran use for each pizza?

b At this same rate, how many cups of flour will he need to make 9 pizzas?

3. A teacher put together 5 baskets of supplies for 25 students to use. Consider using the table to help with your thinking as you solve each of the following problems.

Number of students	Number of baskets
25	5

a How many students use each basket of supplies?

b If there are 8 baskets, how many students could use the supplies?

4. Jada buys a 5-lb bag of potatoes for $7.75. How much does 1 lb of potatoes cost? Explain your thinking.

Name: Date: Period:

5. A triple batch recipe for pancakes contains 3 cups of pancake mix and 2 cups of milk.

a How many cups of pancake mix are in one batch of pancakes? Explain your thinking.

b How many cups of milk are in one batch of pancakes? Explain your thinking.

6. A bakery sells sourdough rolls for $15 per dozen. Consider using the table to help with your thinking as you solve each of the following problems.

a At this same rate, how much would 6 sourdough rolls cost?

b How many sourdough rolls can you buy for $100 at this same rate?

Number of rolls	Price ($)
12	15

Andre's and Elena's families purchased tickets to a fair. Andre bought 5 tickets and paid $28.75. Elena bought 8 tickets and paid $46. Use this information for Problems 7–8, and consider using the table to help with your thinking

7. Did Andre and Elena pay the same price per ticket? Write *yes* or *no*. Explain your thinking.

Number of tickets	Price ($)

8. If she bought 2 more tickets for the same price per ticket, how much did Elena pay in total? Explain your thinking.

Name: Date: Period:

Additional Practice 2.13

1. The ratio of cats to dogs at a boarding facility one weekend is $3 : 8$. There are 33 dogs and cats staying for the weekend in all. Complete the table to show how many dogs and how many cats were at the boarding facility for the weekend.

Cats	Dogs	Total animals
3	8	

2. The ratio of yellow labrador retrievers to black labrador retrievers at a puppy training class is $4 : 3$. If there are 14 labrador retrievers at the class, how many are yellow labrador retrievers and how many are black labrador retrievers? Consider using a diagram or table to help with your thinking.

3. A veterinarian examined 72 pets at her clinic in one day. The ratio of dogs to other pets was $8 : 1$. How many dogs and how many other pets did the veterinarian see? Consider using a diagram or table to help with your thinking.

4. A boarding facility washes 5 small dogs for every 2 large dogs. Consider using a diagram or table to help with your thinking.

a If a total of 35 dogs were washed during one week, how many were large dogs?

b If a total of 42 dogs were washed during another week, how many were small dogs?

c If 40 small dogs were washed last week, what is the total number of dogs that were washed last week?

Name: Date: Period:

5. Diego has $\$100$. He uses the ratio $3 : 2$ to determine how much he can spend and how much he can save. Consider using a diagram or table to help with your thinking.

a How much money will Diego spend?

b How much money will Diego save?

6. Jada has a bag of 110 marbles. The ratio of red marbles to blue marbles is $4 : 1$. Consider using a diagram or table to help with your thinking.

a How many red marbles does Jada have?

b How many blue marbles does Jada have?

7. The first floor of a house contains a family room and a dining room. The combined area of these two rooms is 270 ft^2. The ratio of the area of the family room to the area of the dining room is $4 : 2$. What is the area of each room? Consider using this table to help with your thinking.

Family room (ft^2)	Dining room (ft^2)	Total area (ft^2)

a What is the area of the family room?

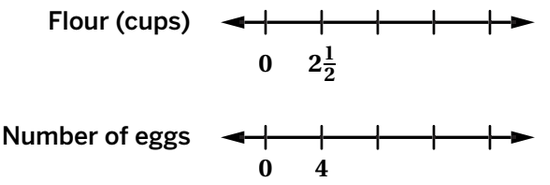
b What is the area of the dining room?

8. A teacher is planning a field trip to the zoo. The zoo requires 3 chaperones for every 25 students. Shawn says, "If there are 112 students in Grade 6 going on this field trip, 12 chaperones are needed." Is Shawn correct? Write *yes* or *no*. Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 2.14

1. The double number line diagram shows the amount of flour and eggs needed for one batch of homemade pasta.



a Complete the diagram to show the amount of flour and eggs needed for 2, 3, and 4 batches of homemade pasta.

b What is the ratio of cups of flour to eggs?

c How much flour and how many eggs are needed in 5 batches of homemade pasta?

d How much flour is used with 16 eggs?

e How many eggs are used with $7\frac{1}{2}$ cups of flour?

2. One batch of purple paint uses 3 tsp of blue paint and 5 tsp of red paint. Shawn made a large amount of the same color purple paint using 40 tsp of red paint. Explain your thinking for each part.

a How many batches of purple paint did Shawn make?

b How many teaspoons of blue paint did Shawn use?

Name: ..... Date: ..... Period: .....

3. Kiran has 80 chocolate chip granola bars, 72 peanut butter granola bars, and 16 oatmeal rasin granola bars for a bake sale. He wants to make bags that have all three types of granola bars and the same number of each type in each bag, without any left over. Which are possible combinations of granola bars in the bags? Select *all* that apply.

- ☐ **A.** 8 bags with 10 chocolate chip bars, 9 peanut butter bars, and 2 oatmeal rasin bars.
- ☐ **B.** 2 bags with 40 chocolate chip bars, 36 peanut butter bars, and 8 oatmeal rasin bars.
- ☐ **C.** 16 bags with 5 chocolate chip bars, 4 peanut butter bars, and 1 oatmeal rasin bars.
- ☐ **D.** 10 bags with 4 chocolate chip bars, 7 peanut butter bars, and 2 oatmeal rasin bars.
- ☐ **E.** 4 bags with 20 chocolate chip bars, 18 peanut butter bars, and 4 oatmeal rasin bars.

4. A bakery makes blueberry muffins, raspberry muffins, and banana muffins in the ratio of $9 : 2 : 4$. If the bakery makes 540 muffins today, how many of each type did they make?

a Blueberry muffins

b Raspberry muffins

c Banana muffins

Name: Date: Period:

Additional Practice 2.15

Shawn is planning on making chai tea and has three different recipes made from mixing loose tea with milk and spices. Use this table to complete Problems 1–4.

Recipe	Tea (tbsp)	Milk (cups)	Spices (tbsp)
A	3	2	2
B	2	1	2
C	2	2	1

1. Shaws says that Recipe C will have the strongest tea flavor. Do you agree with Shawn? Write *yes* or *no*. Explain your thinking.

2. Which recipe will be the milkiest? Explain your thinking.

A. Recipe A

B. Recipe B

C. Recipe C

3. Which recipe will be the spiciest? Explain your thinking.

A. Recipe A

B. Recipe B

C. Recipe C

4. Shawn mixed the ingredients together in a saucepan. The recipe has a ratio of tea to milk to spices of $8:8:4$. Explain your thinking for each part.

a Which recipe did Shawn make in the saucepan?

b How many batches of chai did Shawn mix together?

Name: Date: Period:

Kiran found three different recipes for making sparkling punch. All ingredients are measured in cups. Use this information for Problems 5–8.

Recipe	Pineapple juice	Fresh fruit	Sparkling water
A	2	2	2
B	4	1	5
C	3	3	2

5. Kiran says the least common multiple that he should use to compare these recipes is 30. Do you agree with Kiran? Write *yes* or *no*. Explain your thinking.

6. Which recipe will be the most tart (most pineapple juice)? Explain your thinking.

A. Recipe A

B. Recipe B

C. Recipe C

7. Which recipe will be the fruitiest? Explain your thinking.

A. Recipe A

B. Recipe B

C. Recipe C

8. Kiran made a batch of sparkling punch with the pineapple juice, fresh fruit, and sparkling water mixed in the ratio of $20:5:25$. Which recipe did he use? Explain your thinking.

Grade 6 | Unit 3

Additional Practice

Practice Problems

Name: Date: Period:

Additional Practice 3.01

Problems 1–3: For each pair, circle the larger unit of measurement.

1. **A.** Mile **B.** Meter

2. **A.** Inch **B.** Foot

3. **A.** Pound **B.** Gram

4. Determine whether each unit of measurement measures length, volume, or weight.

Unit	Length	Volume	Weight
Millimeter			
Pound			
Cup			
Quart			
Yard			
Gram			

Problems 5–7: Identify a unit that can be used to measure:

5. The length of a hammer.

6. The volume of an orange soda can.

7. The weight of a truck.

Name: ..... Date: ..... Period: .....

8. Select *all* the measurements that you could measure from a box of cereal.

- ☐ **A.** Inches
- ☐ **B.** Miles
- ☐ **C.** Kilometers
- ☐ **D.** Gallons
- ☐ **E.** Cups
- ☐ **F.** Ounces

9. Match each object with the unit you would most likely use to measure it.

a.	The height of a house .	..... Kilometers
b.	The length of a nail.	..... Pounds
c.	The weight of a staple.	..... Grams
d.	The distance between two towns.	..... Centimeters
e.	The weight of a piggy bank.	..... Feet
f.	The volume of a pitcher of lemonade.	..... Gallons

Name: ..... Date: ..... Period: .....

Additional Practice 3.02

1. Lin's family exchanged 100 U.S. dollars for 128 Canadian dollars. Complete the table to determine the conversions between Canadian dollars and U.S. dollars.

Canadian dollars	U.S. Dollars
128	100
	1
	225
	350
640	

2. Andre's family exchanged 100 U.S. dollars for 82 euros. Complete the table to determine the conversions between euros and U.S. dollars.

Euros	U.S. dollars
82	100
	1
	250
	350
410	

3. There are 3,785 ml in 1 gallon, and there are 4 qt in 1 gallon. Determine the following. Explain your thinking for each part.

a How many quarts are in 20 gallons?

b How many milliliters are in 20 quarts?

4. There are 5,280 ft in 1 mile. A dolphin swam 3 miles. How many feet did the dolphin swim? Explain your thinking.

Name: Date: Period:

5. Clare is making spaghetti sauce that calls for 46 oz of tomatoes. Determine the approximate weight of the tomatoes, in pounds. Explain your thinking.
Hint: There are 16 oz in 1 lb.

6. A large milking jar holds 4 gallons of milk, which is about the same as 15.2 liters of milk. A smaller jar holds 2 gallons of milk. About how many liters does the small jar hold?

A. 3.8 liters

B. 7.6 liters

C. 11.4 liters

D. 30.4 liters

7. Noah's recipe for several loaves of bread calls for 8 lb of flour.
Hint: 1 kg is approximately 35 oz.

a About how many kilograms of flour does Noah need? Round to one decimal digit. Explain your thinking.

b About how many grams of flour does Noah need? Explain your thinking.

8. There are 16 tbsp in 1 cup, and 3 tsp in 1 tbsp. Priya says that $1\frac{1}{4}$ cups of chopped onions is equivalent to 60 tbsp. Is Priya correct? Write *yes* or *no*. Explain your thinking.

Name: Date: Period:

Additional Practice 3.03

1. Cordelia is 66 inches tall. If 100 inches = 254 centimeters, which value is closest to her height in centimeters?

A. 41.94 centimeters
B. 83.82 centimeters
C. 167.64 centimeters
D. 335.28 centimeters

2. A yard is equal to 3 feet, and there are 1,760 yards in 1 mile. How many feet are there in 5 miles?

A. 3,520
B. 5,280
C. 7,040
D. 8,800

3. Gloria's family exchanged 500 dollars for 480 euros. Complete the table to determine the conversions between euros and dollars.

Dollars	Euros
500	480
50	
2	
4	
	1,200
	2,112

Problems 4–6: Use the conversion rate that makes the most sense to determine the approximate value of each missing quantity. Show or explain your thinking.

1 kilogram = 1000 grams	3 ounces ≈ 85 grams
11 pounds ≈ 5 kilograms	4 kilograms ≈ 141 ounces

4. 18 ounces ≈ _____ grams

5. 25 kilograms ≈ _____ pounds

6. 28 kilograms ≈ _____ ounces

Name: Date: Period:

7. Josephine lives 600 meters from her school in France. Thomas lives $1{,}000$ feet from his school in the United States. Given that every 3 meters is approximately 10 feet, who lives farther from their school? Circle one and explain your thinking.

Josephine Thomas About the same distance

8. Auden's puppy eats about 100 grams of dog food per day. Auden wants to know how many pounds that is. Auden knows that there is approximately 454 grams in a pound. About how many pounds is 100 grams?

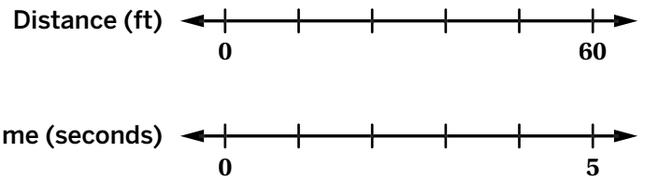
Name: ..... Date: ..... Period: .....

Additional Practice 3.04

1. A bike traveled 60 ft in 5 seconds at a constant speed.

a What was the speed of the bike, in feet per second? Show your thinking.

b Complete the double number line to show the distance the bike could travel after 1, 2, 3, and 4 seconds, at this same rate.

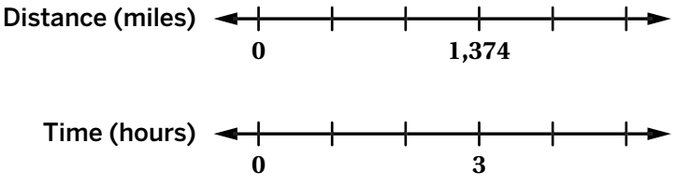


c A scooter traveled 40 ft in 10 seconds at a constant speed. Which traveled faster, the bike or the scooter? Explain your thinking.

2. An airplane traveled 1,374 miles in 3 hours at a constant speed.

a What was the speed of the airplane in miles per hour? Show your thinking.

b Complete the double number line to show the distance the airplane could travel after 1, 2, 4, and 5 hours, at this same rate.



c At this rate, how far could the airplane travel in 6 hours?

3. A train traveled 240 miles in 4 hours at a constant speed. What was the speed of the train, in miles per hour?

4. Determine the unit rate for each scenario.

a A car traveled 260 miles in 4 hours at a constant speed.

b A biker traveled 24 miles in 4 hours at a constant speed.

c A student ran 45.5 meters in 13 seconds at a constant speed.

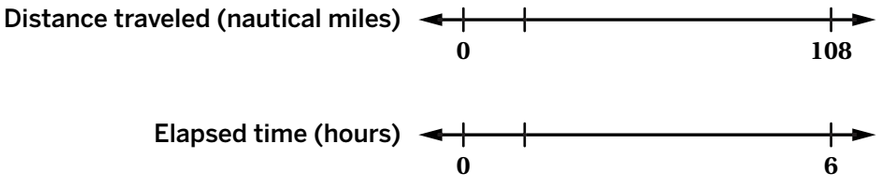
Name: ..... Date: ..... Period: .....

5. A speedboat travelled 75 knots, or 87 miles, in 3 hours at a constant speed.

a How many knots did the speedboat travel in one hour?

b How many miles did the speedboat travel in one hour?

6. A cargo ship traveled 108 nautical miles in 6 hours at a constant speed. How far did the cargo ship travel in one hour? Consider using the double number line to help with your thinking.



7. Two trains are travelling on different tracks at constant speeds, as shown on the table. Which train is travelling faster? Show or explain your thinking.

	Distance traveled (m)	Elapsed time (seconds)
Train A	550	44
Train B	400	20

8. A jet travels 2,300 miles in 5 hours at a constant speed. Kiran claims that the jet travels 575 mph. Is Kiran correct? Explain your thinking.

Name: Date: Period:

Additional Practice 3.05

Problems 1–2: Turtle A walks 1.5 feet in 5 seconds. Turtle B walks 3 feet in 9 seconds. Each turtle keeps walking at those speeds.

1. How far does each turtle walk in 45 seconds?

2. If the two turtles start at the same place and walk in the same direction, how far apart will the two turtles be after 3 minutes? Show or explain your thinking.

3. A cheetah runs 100 m in 6 seconds.

a At this rate, how long will it take the cheetah to run 150 m? Show your thinking.

b How far will the cheetah run in 27 seconds? Show your thinking.

4. Snail A travels 4 in. in 7 minutes. Snail B travels 6 in. in 10 minutes. Each snail continues traveling at a constant speed.

a How far does Snail A travel in 35 minutes? Show your thinking.

b How far does Snail B travel in 35 minutes? Show your thinking.

c If the two snails start at the same place and travel in the same direction, how far apart will the two snails be after 84 minutes? Show your thinking.

Name: ..... Date: ..... Period: .....

5. Elena reads 15 pages in 25 minutes. Shawn reads 12 pages in 15 minutes. Both read at a constant rate.

a Who reads faster? Show your thinking.

b How many pages can Elena read in 1 hour? Show your thinking.

c How many pages can Shawn read in 1 hour? Show your thinking.

Priya types 1,100 words in 20 minutes. Tyler types 600 words in 10 minutes. Andre types 300 words in 6 minutes. Each person types at a constant rate. Use this information for Problems 6–8.

6. Complete the tables to represent the number of words each person can type in different amounts of time.

a **Priya**

Words	Time (min)
	1
	30
	45

b **Tyler**

Words	Time (min)
	1
	30
	45

c **Andre**

Words	Time (min)
	1
	30
	45

7. Which person is typing at a faster rate? How much faster? Show or explain your thinking.

8. How long will it take each person to type 3,300 words? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 3.06

Problems 1–3: Tomas purchased a new printer for their office. The printer can print 250 pages every 2 minutes.

1. How many pages can the printer make per minute?

2. How many minutes does it take per page?

3. How many pages can be printed in 10 minutes?

4. A farm lets you pick 2 pt of blueberries for $\$6.00$.

a What is the cost per pint? Show your thinking.

b How many pints can you buy per dollar? Show your thinking.

c At this rate, how many pints can you buy for $\$15$? Show your thinking.

d At this rate, how much will 7 pt of blueberries cost? Show your thinking.

5. A farm lets you pick 4 lb of strawberries for $\$16.00$.

a What is the cost per pound? Show your thinking.

b How many pounds can you buy per dollar? Show your thinking.

c At this rate, how many pounds can you buy for $\$22$? Show your thinking.

d At this rate, how much will 10 lb of strawberries cost? Show your thinking.

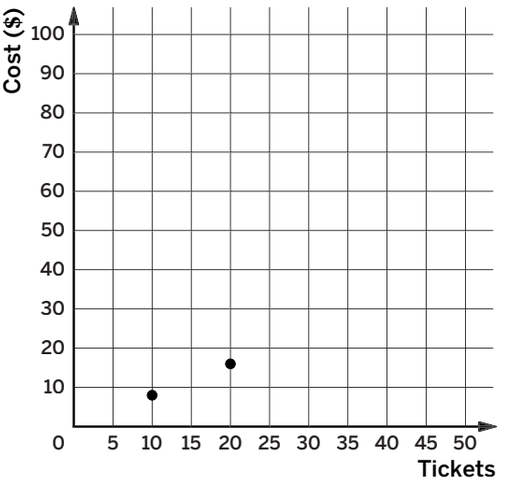
Name: ..... Date: ..... Period: .....

Clare paid $10 for 8 game tickets at her school carnival. Use this information for Problems 6–8.

6. Complete the table to show different numbers of tickets that can be purchased for different dollar amounts at the same rate.

Tickets	Cost ($)	Cost per ticket ($)
8	10	
1		
10		
	18.75	
	30	

7. Clare says that this graph represents two pairs of numbers of tickets and cost, in dollars. Is Clare's graph correct? Explain your thinking.



8. Kiran says that if he pays $6 for 4 tickets, he's getting a better deal than Clare. Do you agree with Kiran? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 3.07

1. Which ratio is *not* equivalent to $8 : 6$?

A. $4 : 3$

B. $1 : \frac{3}{4}$

C. $\frac{4}{3} : 1$

D. $\frac{3}{4} : 1$

2. Which ratios are equivalent to $2 : 8$? Select *all* that apply.

☐ **A.** $1 : 4$

☐ **B.** $1 : 2$

☐ **C.** $\frac{2}{8} : 1$

☐ **D.** $1 : \frac{1}{4}$

☐ **E.** $8 : 32$

3. Lin bought a 40 lb bag of dog food for $\$48.80$. Shawn bought an 8 lb bag of dog food for $\$9.88$.

a Complete this table to determine the unit rate for each bag of dog food.

	Dog food (lb)	Price ($)	Unit rate ($ per lb)
Lin	40	48.80	
Shawn	8	9.88	

b Which size bag of dog food offers the best deal? Explain your thinking.

4. Which brand of peanut butter offers the best deal per ounce? Explain your thinking.

- Brand A: 28 oz for $\$4.76$
- Brand B: 48 oz for $\$8.64$
- Brand C: 16 oz for $\$3.52$

Name: ..... Date: ..... Period: .....

5. The grocery store Noah is shopping at offers different varieties of bags of apples.

a Complete the table to determine the unit price for each variety of apple.

Apple variety	Price ($)	Weight (lb)	Unit rate ($ per lb)
Gala	6.45	5	
Fuji	3.08	4	
Honeycrisp	5.37	3	
Granny Smith	7.74	6	

b Which variety of apples is the best deal? Explain your thinking.

6. Jada reads 15 pages in 12 minutes. Bard reads 21 pages in 28 minutes. Who reads faster? Explain your thinking.

7. Mai uses 8 cups of apples to make 3 pies. Mai says, "At this same rate, I can make 5 pies using 16 cups of apples." Is Mai correct? Explain your thinking.

8. Plane A travels $2{,}260$ miles in 4 hours. Plane B travels 810 miles in $1\frac{1}{2}$ hours. Plane C travels $3{,}692$ miles in $6\frac{1}{2}$ hours. Tyler claims that Plane C has the fastest speed. Do you agree with Tyler? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 3.08

1. A package of 12 water bottles costs $1.32. How much would a package of 40 water bottles cost at the same price per bottle? Show or explain your thinking.

2. A package of 2 mechanical pencils costs $3.98. How much would a package of 8 pencils cost at the same price per pencil? Show or explain your thinking.

3. A package of 32 juice boxes costs $10.88. How much would a package of 10 juice boxes cost at the same price per juice box? Show or explain your thinking.

4. A grocery store sells a box of 6 protein bars for $7.14. Using the same price per protein bar, determine the cost of the following. Show your thinking.

a 8 protein bars

b 15 protein bars

c 20 protein bars

d 32 protein bars

e 4 protein bars

Name: Date: Period:

5. After 2.5 hours, Jada has traveled 160 miles. If she travels at a constant speed, how far will she have traveled after:

a 45 minutes?

b $1\frac{1}{2}$ hours?

c 4 hours?

d 5.5 hours?

6. It takes Diego 16 minutes to read 9 pages. How long will it take Diego to read 36 pages? Show your thinking.

7. Order these animals from heaviest to lightest. Show your thinking. **Hint:** 1 lb $= 16$ oz, 1 kg ≈ 2.2 lb, and 1 ton $= 2{,}000$ lb.

Animal	Weight
Giraffe	816 kg
Hippopotamus	$3{,}300$ lb
Lion	$6{,}720$ oz
Rhinoceros	$2\frac{1}{2}$ tons

8. A 1-gallon container of milk costs $\$3.20$. Han claims that an 80-oz container should cost $\$1.60$ for the unit rate to be the same for both containers. Is Han correct? Explain your thinking. **Hint:** 128 oz $= 1$ gallon.

Name: ..... Date: ..... Period: .....

Additional Practice 3.09

1. Use benchmark percentages to help you determine each percent of 400.

a What is 50% of 400?

b What is 10% of 400?

c What is 1% of 400?

d What is 5% of 400?

e What is $\frac{1}{2}\%$ of 400?

f What is 150% of 400?

2. Use benchmark percentages to help you determine each percent of 150.

a What is 50% of 150?

b What is 10% of 150?

c What is 1% of 150?

d What is 5% of 150?

e What is $\frac{1}{2}\%$ of 150?

f What is 150% of 150?

Han surveyed all 600 students in his school to determine how many siblings each student has. Here are the results of the survey. Use this information for Problems 3 and 4.

- 30 students have 0 siblings.
- 180 students have 1 sibling.
- 150 students have 2 siblings.
- 120 students have 3 siblings.
- 72 students have 4 siblings.
- 48 students have 5 or more siblings.

3. What percent of students have each number of siblings? Complete the table.

	0 siblings	1 sibling	2 siblings	3 siblings	4 siblings	5 or more siblings
Percent (%)						

Name: Date: Period:

4. Assume the school's percentages are representative of all middle schoolers in the entire school district. If there are $1{,}500$ middle school students in the district, how many students are expected to have each number of siblings? Complete the table.

	0 siblings	1 sibling	2 siblings	3 siblings	4 siblings	5 or more siblings
Number of students						

5. How could you determine 25% of any number? Select *all* that apply.

- ☐ **A.** Multiply the number by 0.25.
- ☐ **B.** Divide the number by $\frac{1}{4}$.
- ☐ **C.** Divide the number by 0.25.
- ☐ **D.** Divide the number by 4.
- ☐ **E.** Multiply the number by $\frac{1}{4}$.

6. Which of the following tells you how to determine 150% of any number?

A. Multiply the number by 150.

B. Multiply the number by 15.

C. Multiply the number by 1.5.

D. Multiply the number by 0.15.

7. Priya says that to determine 75% of a number, you divide the number by 4 and then multiply the number by 3. For example, she says that 75% of 40 is 30 because $(40 \div 4) \cdot 3 = 30$. Does Priya's method always work? Explain your thinking.

8. Jada and Diego each answer this question: 8 is what percent of 10?

- Jada says, "8 is 80% of 10."
- Diego says, "8 is 20% of 10."

Who is correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 3.10

1. Select *all* of the expressions that could be used to determine 60% of x.

- ☐ **A.** $(0.6) \cdot x$
- ☐ **B.** $\frac{6}{100} \cdot x$
- ☐ **C.** $60 \cdot x$
- ☐ **D.** $\frac{60}{100} \cdot x$
- ☐ **E.** $\frac{2}{5} \cdot x$
- ☐ **F.** $\frac{3}{5} \cdot x$
- ☐ **G.** $\frac{6}{10} \cdot x$
- ☐ **H.** $(0.06) \cdot x$

2. Select *all* of the expressions that could be used to determine 35% of x.

- ☐ **A.** $35 \cdot x$
- ☐ **B.** $(0.65) \cdot x$
- ☐ **C.** $\frac{35}{100} \cdot x$
- ☐ **D.** $(0.35) \cdot x$
- ☐ **E.** $\frac{13}{20} \cdot x$
- ☐ **F.** $\frac{7}{20} \cdot x$

3. During batting practice, Bard hit 180 pitches and 25% of them were foul balls. How many foul balls did Bard hit? Explain your thinking.

4. 40% of the students in Clare's class earned an A on the last test. If there are 30 students in Clare's class, how many students earned an A? Explain your thinking.

5. Kiran wants to purchase a backpack for $\$50$. If the tax rate is 9%, how much will Kiran pay in tax? Explain your thinking.

Name: Date: Period:

6. Elena surveyed 250 students to find out about the favorite vegetables of students at her school. Complete the table to show either the number of students or the percent of students who said each vegetable was their favorite.

	Number of students	Percent of students (%)
Cucumbers	75	
Carrots	55	
Broccoli		18
Sweet potatoes	40	
Bell peppers		8
Cauliflower		6
Total	250	100

7. The recommended daily allowance for vitamin C for adults is 80 mg, and a 16-oz smoothie says it contains 280% of the daily recommended allowance of vitamin C. How many milligrams of vitamin C are in the smoothie? Show or explain your thinking.

8. A large jug of milk contains 120 oz of milk. A smaller jug of milk contains 65% as much milk as the large bottle. Jada says that there is 42 oz of milk in the smaller bottle. Is Jada correct? Explain your thinking.

Name: Date: Period:

Additional Practice 3.11

1. There are 200 campers attending summer camp this year. 25% of the campers have attended in previous years. Draw a tape diagram to show how many campers have attended previously and how many have not attended previously.

2. Of the 200 campers, 40% of campers have birthdays in the spring.

a How many campers have birthdays in the spring? Show or explain your thinking.

b How many campers do not have birthdays in the spring? Show or explain your thinking.

3. Several campers were surveyed about their favorite camp activity. 11 campers chose archery and 6 campers chose swimming. The campers who chose archery make up 55% of those surveyed, the campers who chose swimming make up 30% of those surveyed, and the rest chose basketball.

a What percent of the campers chose basketball? Show or explain your thinking.

b How many total campers were surveyed? Show or explain your thinking.

Name: Date: Period:

4. The camp is in New York. Of the 45 camp counselors, 80% are from out of state and the rest are from New York.

a What percent of the camp counselors are from New York? Show or explain your thinking.

b How many camp counselors are from out of state? Show or explain your thinking.

For Problems 5–7, tickets to a school play were sold to sixth, seventh, and eight graders.

5. Of the tickets purchased by eighth graders, 33 tickets were sold for Friday night's performance. If this represents 60% of the tickets sold to eighth graders, how many eighth graders purchased tickets? Show or explain your thinking.

6. Of the tickets purchased by seventh graders, 24 were sold for Thursday night's performance. If this represents 30% of the tickets sold to seventh graders, how many seventh graders purchased tickets? Show or explain your thinking.

7. Of the tickets purchased by sixth graders, 96 were sold for Saturday night's performance. If this represents 80% of the tickets sold to sixth graders, how many sixth graders purchased tickets? Show or explain your thinking.

8. A store sells two different-sized boxes of the same cereal. Box A contains 10 cups of cereal. Box B contains 30% more cereal than Box A. How many cups of cereal does Box B contain? Show or explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 3.12

1. Which equations could be used to determine the missing number: 75 is 20% of what number? Select *all* that apply.

- ☐ **A.** $75 = \frac{2}{100} \cdot x$
- ☐ **B.** $20 = \frac{75}{100} \cdot x$
- ☐ **C.** $75 = \frac{20}{100} \cdot x$
- ☐ **D.** $75 = 0.2 \cdot x$
- ☐ **E.** $20 = 0.75 \cdot x$

2. Which equations could be used to determine the missing number: What number is 5% of 88? Select *all* that apply.

- ☐ **A.** $x = \frac{5}{100} \cdot 88$
- ☐ **B.** $\frac{x}{5} = \frac{88}{100}$
- ☐ **C.** $0.05x = 88$
- ☐ **D.** $0.05 \cdot 88 = x$
- ☐ **E.** $\frac{x}{88} = \frac{5}{100}$

3. Determine each missing value. Show your thinking.

a What number is 12% of 125?

b 18 is 90% of what number?

c 120% of what number is 48?

4. Tyler and Andre scored 42% of their team's points at yesterday's basketball game. If their team scored 50 points, how many points did Tyler and Andre score? Explain your thinking.

5. A bakery sells 150 muffins on Tuesday. If 36% of the muffins were sold in the afternoon, how many muffins were sold in the afternoon? Explain your thinking.

Name: Date: Period:

6. An item is sold at two different stores. Which option is a better deal? Explain your thinking.

Store A	The item costs $\$54.95$. There is a coupon for 20% off the price of the item.
Store B	The item costs $\$59.96$. There is a coupon for 25% off the price of the item.

7. An item is on sale for 30% off and then it is reduced an additional 20% off. Another item is 50% off. The original price of the two items is the same. Lin said that the sale price of the two items is the same. Do you agree with Lin? Include an example to explain your thinking.

8. An item is sold at two different stores. Mai says that the price of an item at Store A is a better deal. Do you agree with Mai? Explain your thinking.

Store A	The item costs $\$75$. The sale sign says, "Buy 1, get 1 half off." Two items are purchased.
Store B	The item costs $\$85$. The sale sign says,"Buy 2, get 30% off the total." Two items are purchased.

Name: ..... Date: ..... Period: .....

Additional Practice 3.13

1. Complete each percentage statement.

a 20% of 80 is ..... .

b 150% of 84 is ..... .

c 5% of 420 is ..... .

2. Complete each percentage statement.

a ..... % of 20 is 15.

b ..... % of 170 is 68.

c ..... % of 20 is 25.

3. Complete each percentage statement.

a 14% of ..... is 70.

b 225% of ..... is 81.

c 10% of ..... is 100.

4. On a sixth grade field trip, there are 5 chaperones for every 30 students. There are 175 people on the field trip.

a How many chaperones are on the field trip?

b How many sixth graders are on the field trip?

c What percent are chaperones? **Hint:** Round to the nearest whole percent.

d What percent are sixth graders? **Hint:** Round to the nearest whole percent.

Name: Date: Period:

5. Andre conducts a survey of $1{,}450$ people to find out about their favorite type of vacation. 56% of those surveyed prefer a beach vacation, 28% prefer a vacation in the mountains, and 16% prefer going to amusement parks for vacation.

a How many people prefer a beach vacation?

b How many people prefer a mountain vacation?

c How many people prefer going to an amusement park for vacation?

6. A bakery made $1{,}175$ bagels. 48% are onion bagels, 36% are sesame bagels, and 16% are raisin bagels.

a How many onion bagels were made?

b How many sesame bagels were made?

c How many raisin bagels were made?

7. A bakery sells 12 corn muffins for every 4 lemon poppy seed muffins. On Saturday, the bakery sold 192 muffins.

a How many corn muffins were sold?

b How many lemon poppy seed muffins were sold?

c What percent of all the muffins sold were corn muffins?

d What percent of all the muffins sold were lemon poppy seed muffins?

8. Han says that 429 is 78% of 550. Is Han correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 3.14

Students in two schools were asked whether they agreed with a rule that limits each student to at most one extra credit assignment per class, per semester. The results are shown in the table. Use this information for Problems 1–4. Round your answers to the nearest whole percent.

1. What percent of students from School A agreed with the rule? Show or explain your thinking.

2. What percent of students from School B disagreed with the rule? Show or explain your thinking.

3. What percent of students from both schools agreed with the rule? Show or explain your thinking.

4. What percent of students from both schools disagreed with the rule? Show or explain your thinking.

5. Complete each percentage statement. Show your thinking.

a 85% of 360 is .....

b 17% of ..... is 68.

c .....% of 36 is 63.

Name: ..... Date: ..... Period: .....

6. Clare spent 50 minutes cooking dinner on Friday night.

a On Saturday night, it took Clare 130% as much time to cook dinner as it did on Friday night. How long did it take Clare to cook dinner on Saturday night? Show or explain your thinking.

b On Sunday night, it took Clare 80% as much time to cook dinner as it did on Friday night. How long did it take Clare to cook dinner on Sunday night? Show or explain your thinking.

7. An electronics store usually sells 550 video games each month. Determine each percentage. Show or explain your thinking.

a What percent of the video games sold are 99 games?

b What percent of the video games sold are 462 games?

c What percent of the video games sold are 660 games?

8. A pair of shoes normally costs $\$80$ and is on sale at 20% off. Tyler says, "The sale price of the pair of shoes is $\$68$." Do you *agree* or *disagree* with this statement? Explain your thinking.

Grade 6 | Unit 4

Additional Practice

Practice Problems

Name: ..... Date: ..... Period: .....

Additional Practice 4.01

1. Complete the sentences with the numbers shown. Use each number only once.

6	60	$6{,}000$

a The value of ..... $\div 60.01$ is much greater than 1.

b The value of ..... $\div 60.01$ is close to 1.

c The value of ..... $\div 60.01$ is much less than 1.

2. Without computing, decide whether the value of each expression is *close to* 0, *close to* 1, or *much greater than* 1.

a $600{,}000 \div 60$

b $600 \div \frac{1}{10}$

c $0.008 \div 800$

d $0.79 \div 0.82$

e $\frac{3}{10} \div \frac{3}{11}$

f $46 \div 46{,}000$

3. Lin writes two expressions that each have a dividend of 54: $54 \div 6$ and $54 \div 9$. Lin says that the expression $54 \div 9$ has a greater quotient because the divisor is larger. Do you agree with Lin? Explain your thinking.

Name: Date: Period:

Problems 4–9: Without calculating, decide whether the value of each quotient is *greater than* 1, *less than* 1, *or equal to* 1.

4. $30{,}299 \div 30$

5. $60 \div \frac{1}{4}$

6. $20 \div 20{,}000$

7. $\frac{1}{2} \div \frac{1}{2}$

8. $20 \div 19$

9. $\frac{1}{2} \div 20$

Name: ..... Date: ..... Period: .....

Additional Practice 4.02

28 marbles are being divided to play a game. The equation $28 \div 4 = 7$ represents how the marbles are used. Use this information for Problems 1–2.

1. If 4 represents the number of people playing the game, what does 7 represent?

A. The number of games being played

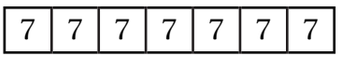
B. The number of marbles for each person

C. The total number of marbles used for the game

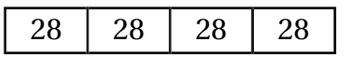
D. The number of rules to play the game

2. Which tape diagram models the equation?

A.



B.



C.

D.

3. A group needs $60 to pay for tickets to visit an aquarium. All tickets cost the same amount. Use *yes* or *no* to decide whether each of the following statements correctly describes a meaning for $60 \div 4$ in this scenario.

a If 4 represents the number of people in the group, then $60 \div 4$ represents the cost of each ticket.

b If 15 represents the number of tickets purchased, then 4 represents the number of people in the group.

c If 15 represents the cost of each ticket, then 4 represents the number of tickets sold.

d If 4 represents the cost of each ticket then $60 \div 4$ represents the number of tickets that can be bought.

Name: Date: Period:

4. A deli makes 10 lb of potato salad. If the deli sells portions of potato salad in $\frac{1}{2}$-lb containers, how many portions can the deli sell?

a Draw a tape diagram to model this scenario.

b Write a division expression that represents this scenario.

c How many portions of potato salad can the deli sell?

5. A 30 m wire is cut into 5 sections. How long is each section?

a Draw *two* different diagrams to model this scenario.

b Write a division expression that represents this scenario?

c Determine the length of each section.

Noah has 180 baseball cards that he placed into page protectors. He used the expression $180 \div 12$ to represent this scenario. Refer to this information for Problems 6–8.

6. Draw a diagram to model this scenario.

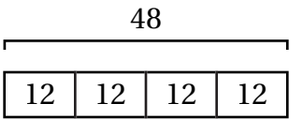
7. 180 baseball cards are divided into 12 equal-sized groups. How many cards are in each group?

8. 180 baseball cards are divided into groups of 12. How many groups of cards did Noah make?

Name: ..... Date: ..... Period: .....

Additional Practice 4.03

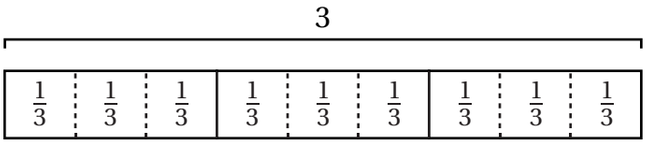
1. Refer to the tape diagram shown.



a Write a multiplication equation that could be represented by the diagram.

b Write a division equation that could be represented by the diagram.

2. Refer to the tape diagram shown.



a Write a multiplication equation that could be represented by the diagram.

b Write a division equation that could be represented by the diagram.

3. Andre's neighborhood swimming pool is open for 10 hours each day. Each lifeguard's shift is $2\frac{1}{2}$ hours. How many shifts will be available throughout the day?

4. Mai was filling several same-sized jars with oatmeal to make overnight oats. She put $\frac{2}{3}$ cup of oatmeal in each jar, using a total of 6 cups.

- Mai says, "I can use the equation $6 \cdot ? = \frac{2}{3}$ to determine how many jars are filled."
- Diego says, "I can use the equation $6 \div \frac{2}{3} = ?$ to determine how many jars are filled."

Do you agree with *one*, *both*, or *neither* of them? Explain your thinking.

Name: Date: Period:

Problems 5–6: Philipe is making an ice cream sundae with two friends. Philipe's two friends are using different-sized scoops to make their sundaes. If Philipe's recipe for the ice cream sunday calls for 6 cups of ice cream, how many scoops of ice cream does each friend need?

5. Tomas: $\frac{1}{2}$–cup scoop

6. Angelica: 3 cup-scoop

7. Priya was filling snack bags with trail mix. After using 9 cups of trail mix, she had filled 12 bags. If all of the snack bags have the same amount of trail mix, how much is in each bag?

a Multiplication equation:

b Division equation:

c Diagram:

d Solution:

Name: ..... Date: ..... Period: .....

Additional Practice 4.04

Problems 1–5: Levi is planting herbs in his garden. Determine how many of each herb plant Levi can fit in 1 planter. Use the diagrams if they help with your thinking.

1. Sage, if 10 sage plants fill $\frac{1}{2}$ of a planter.

2. Thyme, if 8 thyme plants fill $\frac{2}{3}$ of a planter.

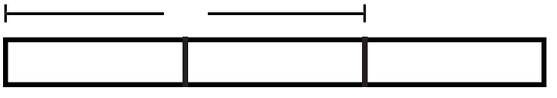
3. Basil, if 3 basil plants fill $\frac{1}{3}$ of a planter.

4. Oregano, if 3 oregano plants fill $\frac{3}{4}$ of a planter.

5. Levi wrote the expression $3 \div \frac{3}{4}$ to represent how many oregano plants fill 1 planter. Describe a situation that represents the expression $6 \div \frac{2}{3}$.

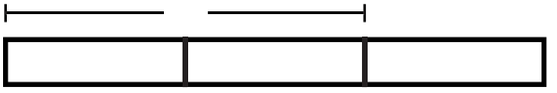
Problems 6–7: Juni picks 12 blackberries from her backyard, which fill $\frac{2}{3}$ of a cup.

6. Label the tape diagram to represent Juni's situation.



Name: ..... Date: ..... Period: .....

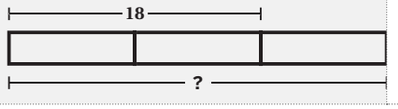
7. Determine how many blackberries fill 1 cup. Use the tape diagram if it helps with your thinking.



8. Maj is painting his kitchen. He uses 5 gallons of paint for $\frac{5}{8}$ of the kitchen. How many gallons of paint would he need to paint the whole kitchen?

9. Sergio is planting flowers in his garden. 21 flowers fill 3 small planters. How many flowers fill 1 small planter?

10. Match each representation with a question.

Representation	18 flowers fill 2 planters. How many flowers fill 1 planter?	18 flowers fill $\frac{2}{3}$ of a planter. How many flowers fill 1 planter?
$18 \div 2 = ?$		
$18 \div \frac{2}{3} = ?$		
$2 \times ? = 18$		
$\frac{2}{3} \times ? = 18$		
		

Name: ..... Date: ..... Period: .....

Additional Practice 4.05

A hexagon represents 1 whole. Use the pattern blocks shown to complete Problems 1–4.

1. What fractions of a whole does each of the following shapes or combinations of shapes represent? Show or explain your thinking.

a 2 rhombuses

b 3 trapezoids

c 3 triangles

d 1 hexagon and 1 triangle

2. Write an equation that could be used to represent each question. Use a question mark for the unknown. Then solve the equation.

a How many $\frac{1}{2}$s are in 3?

b How many $\frac{2}{3}$s are in 4?

c How many $\frac{1}{6}$s are in $3\frac{1}{2}$?

3. How many $\frac{1}{6}$s are in $1\frac{2}{3}$? Show your thinking.

A. $\frac{1}{10}$ **B.** $\frac{5}{18}$

C. $3\frac{3}{5}$ **D.** 10

4. Determine how many $\frac{1}{3}$s are in $2\frac{2}{3}$. Show or explain your thinking.

Name: Date: Period:

5. Bard buys rice in a 4-cup box. Bard's family uses $1\frac{1}{3}$ cups of rice per meal. How many meals does one box last?

a Draw a diagram to represent the scenario. Label your diagram.

b Write a multiplication or division equation to represent the scenario. Use a question mark for the unknown.

c Determine how many meals one box lasts. Explain your thinking.

6. Clare is cutting a 4-ft board into $\frac{4}{5}$ ft sections. How many sections of board will Clare cut?

a Draw a diagram to represent the scenario. Label your diagram.

b Write a multiplication or division equation to represent the scenario. Use a question mark for the unknown.

c Determine how many sections of board Clare will cut.

7. Diego and Han were each asked to write a question that represents the equation $? \cdot \frac{1}{5} = 6$.

Diego's response	Han's response
How many $\frac{1}{5}$s are in 6?	How many 6s are in $\frac{1}{5}$?

Did either Diego or Han correctly write a question that represents the equation? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 4.06

1. Select *all* the expressions whose value is greater than 1.

☐ **A.** $2 \div \frac{3}{2}$ ☐ **B.** $\frac{3}{2} \div 2$ ☐ **C.** $\frac{3}{4} \div \frac{1}{3}$ ☐ **D.** $\frac{4}{3} \div 2$ ☐ **E.** $4 \div \frac{3}{4}$

2. Jada ordered a 3-ft sub from the grocery store for a party. She cuts the sub into $\frac{1}{2}$-ft servings. Jada says the sub is long enough to feed 6 people. Do you agree with Jada? Explain your thinking.

Problems 3–4: Here is a diagram.

3. Determine if the value of $1\frac{1}{2} \div \frac{2}{3}$ is:

Less than 1 Greater than 1

4. Calculate the value of the expression in Problem 3.

Use the diagram if it helps you with your thinking.

Problems 5–6: Here is a diagram.

5. Determine if the value of $\frac{1}{2} \div \frac{3}{4}$ is:

Less than 1 Greater than 1

6. Calculate the value of the expression in Problem 5.

Use the diagram if it helps you with your thinking.

Name: Date: Period:

Problems 7–9: Here is a diagram.

7. Calculate $\frac{1}{3} \div \frac{3}{2}$.

Use the diagram if it helps you with your thinking.

8. Calculate $\frac{3}{2} \div \frac{1}{3}$.

Use the diagram if it helps you with your thinking.

9. How are Problems 7 and 8 similar? How do their solutions compare? Why do you think this is the case?

10. Kiran describes how to draw a diagram to represent and calculate $\frac{4}{3} \div \frac{1}{2}$.

Kiran's Response
Draw a tape diagram whose length represents $\frac{4}{3}$. Partition the diagram into 4 equal parts to show 4 groups of $\frac{1}{3}$. Then, partition each $\frac{1}{3}$ into 2 equal parts. There are 8 groups of $\frac{1}{2}$'s in $\frac{4}{3}$. Therefore, the value of $\frac{4}{3} \div \frac{1}{2}$ is 8.

Did Kiran correctly describe how to draw a tape diagram? Explain or show your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 4.07

Problems 1–4: Calculate the value of each expression. Draw a diagram if it helps with your thinking.

1. $4 \div \frac{3}{4}$

2. $3\frac{2}{3} \div \frac{5}{6}$

3. $\frac{5}{2} \div 1\frac{1}{3}$

4. $2\frac{3}{4} \div \frac{5}{6}$

Problems 5–6: Noah picked $3\frac{1}{2}$ cups of blackberries, which is enough for $\frac{3}{4}$ jars of blackberry jam. Show your thinking.

5. How many cups does Noah need for 1 jar of blackberry jam?

6. How many jars can Noah fill using 8 cups of blackberries?

Name: Date: Period:

7. One batch of tomato sauce uses $3\frac{1}{2}$ pounds of tomatoes. André has 5 pounds of tomatoes. He says he can make $1\frac{2}{5}$ batches of tomato sauce. Do you agree with André? Explain your thinking.

8. After charging for $1\frac{1}{3}$ hours, a laptop is at $\frac{3}{5}$ of its full power. How long will it take the laptop to charge completely? Show your thinking.

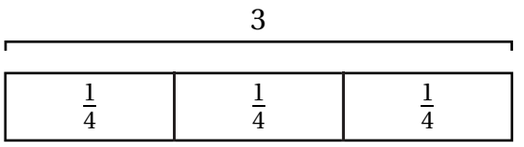
9. Shawn has $5\frac{1}{2}$ cups of lemonade. If each serving of lemonade is $\frac{3}{4}$ cup, how many servings does Shawn have?

Name: ..... Date: ..... Period: .....

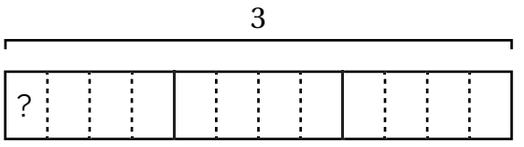
Additional Practice 4.08

1. Which of the tape diagrams shown represents the expression $3 \div \frac{1}{4}$?

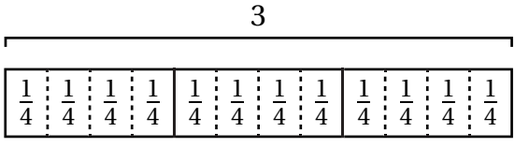
A.



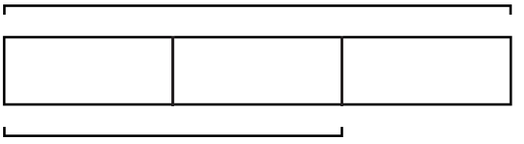
B.



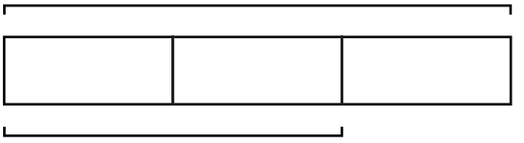
C.



2. Complete the tape diagram shown to represent and solve the following problem. What fraction of $\frac{2}{3}$ is 1?



3. Complete the tape diagram to represent and solve the following problem. Tyler picked 1 cup of blueberries, which is enough for $1\frac{1}{2}$ batches of blueberry muffins. How many cups does he need for 1 batch?

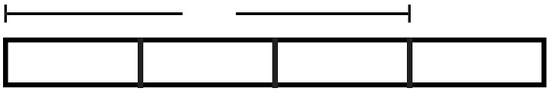


4. Shawn painted $\frac{5}{2}$ yd^2 of wall area with 2 gallons of paint. How many gallons of paint were needed to paint each square yard of wall?

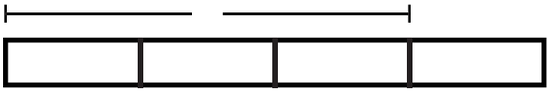
Name: ..... Date: ..... Period: .....

Problems 5–6: Complete the tape diagram to represent and solve each problem.

5. Trevor picked 1.5 cups of raspberries, which is enough for $\frac{3}{4}$ of a pan of raspberry shortcake. How many cups does he need for a whole pan of raspberry shortcake?

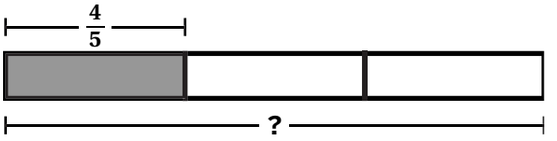


6. Tonya picked 6 cups of blueberries, which is enough for $\frac{3}{4}$ of a pan of blueberry crumble. How many cups does she need for a whole blueberry crumble?



7. $\frac{3}{5}$ of the town population walks to the park on a given Saturday. If 180 town residents walked to the park that day, how many total residents live in the town?

8. Calculate $\frac{4}{5} \div \frac{1}{3}$. Use the tape diagram if it helps with your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 4.09

Problems 1–5: Use any strategy to calculate each quotient.

1. $9 \div \frac{1}{3}$

2. $9 \div \frac{3}{5}$

3. $4\frac{3}{4} \div \frac{3}{8}$

4. $\frac{1}{3} \div \frac{4}{5}$

5. $2\frac{3}{4} \div \frac{1}{2}$

6. How many groups of $\frac{3}{4}$ are in $6\frac{1}{2}$?

7. How many groups of $\frac{3}{4}$ are in $3\frac{2}{3}$?

8. Use the equation $3\frac{1}{2} \div \frac{1}{6} = 21$ to determine $3\frac{1}{2} \div \frac{2}{6}$. Explain your thinking.

9. Here are four expressions.

$\frac{5}{3} \div \frac{2}{5}$	$\frac{5}{3} \div 2$	$\frac{5}{3} \div \frac{1}{5}$	$\frac{5}{3} \div 1$

a Order these expressions by value from *least* to *greatest*.

Least **Greatest**

b How are these expressions alike? How are these expressions different? Explain your thinking.

10. Here is an expression from the previous problem.

$\frac{5}{3} \div \frac{1}{5}$

Calculate its value. Explain your approach.

11. Here is a list of expressions.

$6 \times \frac{1}{2}$	$\frac{1}{3} \div \frac{1}{9}$
$\frac{2}{3} \div \frac{1}{9}$	$\frac{4}{5} \div \frac{1}{5}$
$\frac{2}{3} \div \frac{1}{6}$	$\frac{1}{3} \div \frac{1}{5}$
$9 \times \frac{1}{3}$	$4 \times \frac{3}{2}$

a Group the expressions into the appropriate column of the table. One of the expressions will not have a match.

Value of 3	Value of 4	Value of 6
$6 \times \frac{1}{2}$	$\frac{2}{3} \div \frac{1}{6}$	$\frac{2}{3} \div \frac{1}{9}$
$9 \times \frac{1}{3}$	$\frac{4}{5} \div \frac{1}{5}$	$4 \times \frac{3}{2}$
$\frac{1}{3} \div \frac{1}{9}$		

b Explain why one of the expressions does not have a match with one of the columns in the table.

Name: ..... Date: ..... Period: .....

Additional Practice 4.10

1. Draw a tape diagram to show how you could evaluate the expression $3 \div \frac{3}{4}$. You do not need to determine the quotient.

2. Which equation matches the phrase, "The quotient of 6 and $\frac{1}{3}$?"

A. $6 \div \frac{1}{3}$

B. $6 \cdot \frac{1}{3}$

C. $\frac{1}{3} \div 6$

D. $\frac{1}{3} \cdot 6$

3. Complete the expression so that the result would be equal to $\frac{1}{3} \div \frac{5}{6}$.

$\frac{1}{3} \cdot$ ..... $\div$ .....

4. Which expression(s) could be used to determine the quotient of $\frac{1}{5}$ and $\frac{1}{7}$? Select *all* that apply.

☐ **A.** $\frac{1}{7} \cdot 5$

☐ **B.** $\frac{1}{7} \cdot \frac{1}{5}$

☐ **C.** $\frac{1}{5} \cdot \frac{1}{7}$

☐ **D.** $\frac{1}{5} \cdot 7$

☐ **E.** $\frac{1}{7} \div \frac{1}{5}$

☐ **F.** $\frac{1}{5} \div \frac{1}{7}$

Name: ..... Date: ..... Period: .....

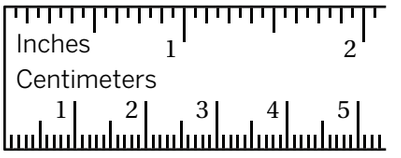
5. Determine each quotient. Show your thinking.

a $4 \div \frac{1}{9}$

b $4 \div \frac{4}{9}$

c $4 \div \frac{8}{9}$

6. A centimeter ruler is shown.



a Use the ruler to determine the quotients of $1 \div \frac{1}{10}$ and $3 \div \frac{1}{10}$.

b What calculation did you use each time?

c Use this pattern to determine $13 \div \frac{1}{10}$.

7. Diego says he can use the equation $3\frac{1}{5} \div \frac{1}{5} = 16$ to determine $3\frac{1}{5} \div \frac{3}{5}$. because the quotient will be tripled because $\frac{3}{5}$ is three times as much as $\frac{1}{5}$. Is Diego correct? Explain your thinking.

8. Han says he can determine the quotient of $2 \div \frac{4}{5}$ by dividing two wholes into fifths to find the quotient, and that the quotient is $2\frac{1}{2}$. Elena says she can determine the quotient of $2 \div \frac{4}{5}$ by multiplying 2 and 4, then dividing by 5, and that the quotient is $1\frac{3}{5}$. Who is correct? Explain your thinking.

Name: _____ Date: _____ Period: _____

Additional Practice 4.11

1. Complete the statements to provide the correct steps for evaluating the expression $\frac{9}{10} \div \frac{4}{5}$.

a Multiply $\frac{9}{10}$ by _____, and then divide by _____.

b Multiply $\frac{9}{10}$ by _____, and then multiply by _____.

2. Complete the statements to provide the correct steps for evaluating the expression $\frac{2}{3} \div 2\frac{1}{6}$.

a Multiply $\frac{2}{3}$ by _____, and then divide by _____.

b Multiply $\frac{2}{3}$ by _____, and then multiply by _____.

3. Select *all* of the expressions that have the same value as $4 \div \frac{12}{13}$.

- ☐ **A.** $4 \div \frac{13}{12}$
- ☐ **B.** $4 \cdot 13 \div 12$
- ☐ **C.** $\frac{13}{12} \cdot 4$
- ☐ **D.** $4 \cdot \frac{12}{13}$
- ☐ **E.** $4 \cdot 12 \div 13$
- ☐ **F.** $4 \cdot \frac{13}{12}$
- ☐ **G.** $4 \div 13 \cdot 12$
- ☐ **H.** $4 \div 13 \cdot \frac{1}{12}$

4. Select *all* of the expressions that have the same value as $4\frac{1}{6} \div 2\frac{2}{3}$.

- ☐ **A.** $4\frac{1}{6} \cdot \frac{3}{8}$
- ☐ **B.** $\frac{25}{6} \div \frac{8}{3}$
- ☐ **C.** $\frac{8}{3} \cdot \frac{25}{6}$
- ☐ **D.** $4\frac{1}{6} \div 3 \cdot 8$
- ☐ **E.** $\frac{25}{6} \cdot \frac{3}{8}$
- ☐ **F.** $25 \div 6 \div 3 \cdot 8$
- ☐ **G.** $\frac{8}{3} \div \frac{6}{25}$
- ☐ **H.** $\frac{25}{6} \cdot 3 \div 8$

Name: ..... Date: ..... Period: .....

5. Determine the value of each of the following. Show your thinking.

a $\frac{1}{4} \div \frac{1}{2}$

b $\frac{3}{2} \div \frac{4}{9}$

c $\frac{1}{8} \div \frac{1}{8}$

d $\frac{7}{10} \div \frac{7}{8}$

6. Determine the value of each of the following. Show your thinking.

a $2 \div \frac{1}{3}$

b $5\frac{1}{4} \div 4$

c $8\frac{3}{5} \div 3\frac{1}{2}$

d $5\frac{4}{5} \div 4\frac{1}{3}$

7. Priya and Mai used different expressions to determine the quotient of $\frac{2}{15} \div \frac{2}{3}$. Their expressions are shown in the table.

Priya's response	Mai's response
$2 \div 15 \div 2 \cdot 3$	$\frac{2}{15} \cdot 3 \div 2$

Whose expressions will lead to the correct quotient? Explain your thinking.

8. Tyler says the quotient of $\frac{5}{8} \div \frac{2}{9}$ is $\frac{5}{36}$. Do you agree with Tyler? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 4.12

1. How many groups of $\frac{5}{6}$ are in each of the following quantities? Show your thinking.

a $\frac{2}{3}$

b $1\frac{1}{2}$

c $4\frac{1}{6}$

2. How many groups of $1\frac{3}{4}$ are in each of the following quantities? Show your thinking.

a $2\frac{1}{2}$

b 4

c $\frac{3}{4}$

3. Shawn's golf club is $3\frac{3}{4}$ ft tall. Shawn's hockey stick is $5\frac{1}{2}$ ft tall.

a What fraction of the golf club's height is the hockey stick? Show your thinking.

b How many times as tall is the hockey stick than the golf club? Show your thinking.

4. Jada is $5\frac{1}{4}$ ft tall. Her little sister is 4 ft tall. How many times taller is Jada than her sister?

A. $\frac{4}{5}$ **B.** $\frac{16}{21}$ **C.** $1\frac{1}{4}$ **D.** $1\frac{5}{16}$

Name: Date: Period:

Clare and Diego each went for a bike ride. Clare rode $1\frac{1}{2}$ mi, and Diego rode $2\frac{3}{4}$ mi. Use this information for Problems 5–6.

5. How many times as far as Clare did Diego ride?

a Write a division expression to represent this situation.

b Determine the solution. Show your thinking.

6. What fraction of Diego's distance did Clare ride?

a Write a division expression to represent this situation.

b Determine the solution. Show your thinking.

7. Andre uses $1\frac{5}{6}$ lb of tomatoes for a batch of homemade spaghetti sauce. He has $9\frac{1}{2}$ lb of tomatoes from his garden. Does Andre have enough tomatoes to make 6 batches of spaghetti sauce? Explain your thinking.

8. Mai has worked $3\frac{3}{4}$ hours of her $7\frac{3}{4}$ hour shift. She says that she has worked more than half of her shift. Is Mai correct? Explain your thinking.

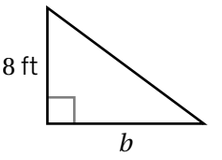
Name: Date: Period:

Additional Practice 4.13

1. A rectangular coffee table has a length of $46\frac{1}{2}$ in., a width of w in., and an area of $1{,}395$ in^2. Select *all* the equations that represent the relationship between the dimensions of the coffee table.

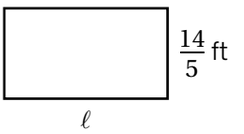
- ☐ **A.** $w \cdot 1{,}395 = 46\frac{1}{2}$
- ☐ **B.** $w \div 1{,}395 = 46\frac{1}{2}$
- ☐ **C.** $46\frac{1}{2} \cdot w = 1395$
- ☐ **D.** $46\frac{1}{2} \cdot 1{,}395 = w$
- ☐ **E.** $1{,}395 \div w = 46\frac{1}{2}$
- ☐ **F.** $1{,}395 \div 46\frac{1}{2} = w$

2. The triangle has a height of 8 ft and an area of 42 ft^2. Select *all* the equations that represent the relationship between the dimensions of the triangle.

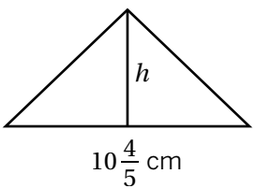


- ☐ **A.** $42 = \frac{1}{2} \cdot b \cdot 8$
- ☐ **B.** $42 \div w = \frac{1}{2} \cdot 8$
- ☐ **C.** $42 \div b = 8$
- ☐ **D.** $4 \cdot b = 42$
- ☐ **E.** $8 \cdot b = 42$
- ☐ **F.** $b \div 8 = 42$

3. The area of the rectangle is 28 ft^2. What is the length of the rectangle? Show your thinking.



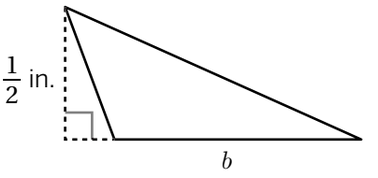
4. The area of the triangle is 27 cm^2. What is the missing height h? Show your thinking.



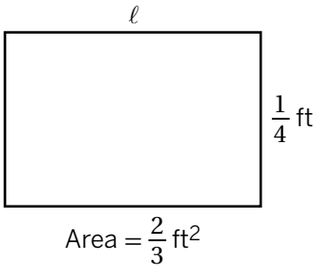
Name: Date: Period:

5. Han is tiling a shower wall that is 8 ft by 6 ft. The tiles are squares with a side length of $1\frac{1}{3}$ ft. How many tiles are needed to cover the entire shower wall? Show or explain your thinking.

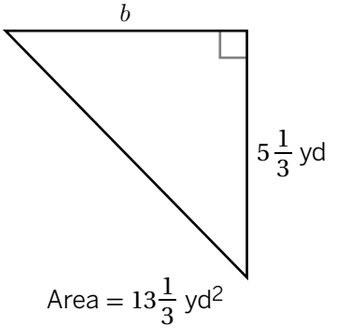
6. The area of the triangle is $\frac{2}{7}$ in^2. What is the missing length b? Show your thinking.



7. Lin said the missing length of the rectangle could be determined by solving the equation $\frac{2}{3} = \ell \cdot \frac{1}{4}$. Do you *agree* or *disagree*? If you agree, use Lin's equation to solve for l. If you disagree, write an equation that would solve for l and then solve your equation.



8. Bard said the missing length of the triangle could be determined by solving the equation $\frac{1}{2} \cdot b \cdot 13\frac{1}{3} = 5\frac{1}{3}$. Do you *agree* or *disagree*? If you agree, use Bard's equation to solve for b. If you disagree, write an equation that would solve for b and then solve your equation.



Name: Date: Period:

Additional Practice 4.14

1. A rectangular prism measures $\frac{2}{3}$ in. by $2\frac{1}{3}$ in. by 3 in. Which expression can be used to determine the volume of the prism?

A. $\frac{2}{3} + 2\frac{1}{3} + 3$

B. $\frac{2}{3} \cdot 2\frac{1}{3} \cdot 3$

C. $\frac{2}{3} + 2\frac{1}{3} \cdot 3$

D. $\frac{2}{3} \cdot 2\frac{1}{3} + 3$

2. Consider a cube with an edge length of 3 cm. Which expression can be used to determine how many cubes with an edge length of $\frac{1}{2}$ cm are needed to fill the cube?

A. $3 \cdot 3 \cdot 3 \cdot \frac{1}{2}$

B. $3\frac{1}{2} \cdot 3\frac{1}{2} \cdot 3\frac{1}{2}$

C. $\frac{1}{2} \cdot 3^3$

D. $(3 \cdot 2) \cdot (3 \cdot 2) \cdot (3 \cdot 2)$

3. For each prism, use the table to record how many $\frac{1}{4}$-in. cubes can be packed into the prism. Then determine the volume of the prism.

Prism length (in.)	Prism width (in.)	Prism height (in.)	Number of $\frac{1}{4}$-in. cubes in prism	Volume of prism (in^3)
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$		
1	1	$\frac{1}{4}$		
2	1	$\frac{1}{4}$		
4	4	$\frac{3}{4}$		
$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$		

4. Examine the values in the table for Problem 3. What is the relationship between the volume and the number of $\frac{1}{4}$-in. cubes?

Name: ..... Date: ..... Period: .....

5. Consider a cube with edge lengths of 1 in.

a How many cubes with edge lengths of $\frac{1}{6}$ in. are needed to build a cube with an edge length of 1 in.? Explain your thinking.

b What is the volume, in cubic inches, of one cube with an edge length of $\frac{1}{6}$ in.? Show or explain your thinking.

6. Tyler is using small wooden cubes with edge lengths of $\frac{1}{2}$ in. to build a larger cube that has edge length of 5 in. How many small cubes does he need? Explain your thinking.

7. A rectangular prism measures $2\frac{1}{3}$ in. by $4\frac{2}{3}$ in. by 3 in.

a Noah says, "It takes more cubes with edge length of $\frac{2}{3}$ in . than cubes with edge length of $\frac{1}{3}$ in. to pack the prism." Do you agree with Noah? Explain your thinking.

b How many cubes with edge length of $\frac{1}{3}$ in. would pack the prism? Explain your thinking.

c Show or explain how you can use your answer from part b to determine the volume of the prism in cubic inches.

8. Kiran says that $6{,}750$ cubes, each with an edge length of $\frac{1}{5}$ in., are needed to fill a rectangular prism that is 5 in. by 2 in. by $5\frac{2}{5}$ in. Do you *agree* or *disagree* with Kiran? Show or explain your thinking.

Name: Date: Period:

Additional Practice 4.15

1. A rectangular prism has a volume of $66\frac{2}{3}$ in^3, a height of 5 in., and a length of 2 in. Which equation(s) can be used to determine the width w of the prism? Select *all* that apply.

- ☐ **A.** $2 \cdot 5 \cdot w = 66\frac{2}{3}$
- ☐ **B.** $10 \div 66\frac{2}{3} = w$
- ☐ **C.** $66\frac{2}{3} \cdot 2 \cdot 5 = w$
- ☐ **D.** $66\frac{2}{3} \div 10 = w$

2. A horse trough in the shape of a rectangular prism is being filled with water. The length of the trough is 4 ft and its width is $1\frac{1}{3}$ ft. When the height of the water in the trough is $1\frac{3}{4}$ ft, what is the volume of the amount of water in the trough? Show your thinking.

3. A rectangular prism has the dimensions shown in the table. Determine the missing height for the rectangular prism. Show your thinking.

Volume	Base	Height
$2\frac{2}{5}$ cm^3	3 cm^2	

4. A rectangular prism has the dimensions shown in the table. Determine the missing length for the rectangular prism. Show your thinking.

Volume	Length	Width	Height
$13\frac{1}{8}$ in^3		$2\frac{1}{2}$ in.	$1\frac{3}{4}$ in.

Name: ..... Date: ..... Period: .....

Bard uses storage boxes to store model cars. Each box has a volume of 144 in^3, and the base of the box measures 8 in. by 4 in. Use this information for Problems 5–7.

5. What is the height of one of Bard's storage boxes, in inches? Show your thinking.

6. Bard keeps the storage boxes containing the model cars in a trunk at the foot of Bard's bed. The dimensions of the trunk, in inches, are 40 by 8 by 10. How many boxes of model cars can Bard store in the trunk?

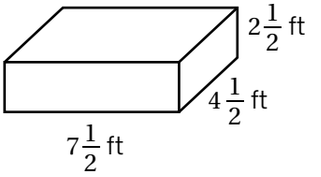
7. Bard wants to purchase a new trunk that will store more model cars. There are two trunk options that Bard finds online, with the following dimensions:

Trunk A: 64 in. by 9 in. by 15 in.

Trunk B: 32 in. by 16 in. by 20 in.

Which trunk will store the most model cars? Explain your thinking.

8. Clare claimed that the base of this prism has an area of $11\frac{1}{4}$ ft^2 and the volume is $84\frac{3}{8}$ ft^3. Han claimed that the base of this prism has an area of $18\frac{3}{4}$ ft^2, but agreed that the volume is $84\frac{3}{8}$ ft^2. Who is correct? Show or explain your thinking.



Grade 6 | Unit 5

Additional Practice

Practice Problems

Name: Date: Period:

Additional Practice 5.01

1. Julia has $\$24.00$ to spend at the movie theater. She spent $\$8.80$ on a movie ticket and $\$10.87$ for popcorn and a drink. Does she have more or less than $\$4.00$ left? Circle one.

More than $\$4.00$ Less than $\$4.00$

Show or explain your thinking.

Problems 2–4: Marik and his 3 friends are at a local Paint Ball Park. They have a total of $240.00 to spend. They are trying to decide between the two packages below.

Paint Ball Explosion Package		Paint Ball Domination Package	
1 hour of paint ball play	– $\$14.95$ each	Up to 3 hours of paint ball play	– $\$18.50$ per group per hour
Paint Ball Gun Rental	– $\$12.89$ each		
200 Paint Balls & Air Tank	– $\$18.10$ each	500 Paint Balls/Air Tank	– $\$31.89$ each
Googles/Vest Rental	– $\$14.90$ each	Paint Gun/Googles & Vest Rental	– $\$15.36$ each

2. How many hours of the Paint Ball Explosion Package can they purchase? Show or explain your thinking.

3. Can Marik and his friends afford the Paint Ball Domination Package? Show or explain your thinking.

4. Which package would you recommend Marik and his friends purchase? Show or explain your thinking.

Name: Date: Period:

Problems 5–6: Leigh is buying groceries for her grandmother. She gave Leigh $\$50$ to purchase the following items:

Grapes $\$3.99$	Mayonnaise $\$6.18$	Walnuts $\$14.88$
Roasted Chicken $\$6.49$	Celery $\$2.69$	Red Onion $\$1.42$

5. Round each price to a value that is easier to add using mental math. Show your thinking.

6. Determine the estimated cost of the groceries. Show your thinking.

7. Approximately how much money will Leigh have left after buying these groceries? Show or explain your thinking.

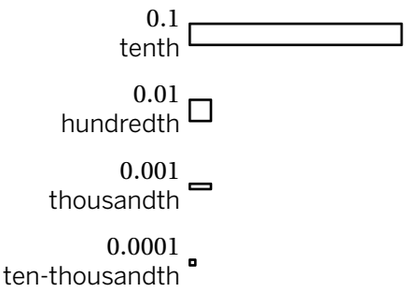
8. Tickets to the play cost $\$15.50$ each for adults, $\$12.50$ each for senior citizens and $\$5.25$ each for students. A family is purchasing 2 adult tickets, 2 senior tickets, and 3 student tickets.

What is the approximate total cost? Show or explain your thinking.

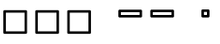
Name: ..... Date: ..... Period: .....

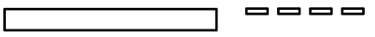
Additional Practice 5.02

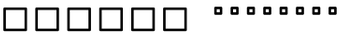
Use this key for Problems 1–4.



1. What number does each diagram represent?

a 

b 

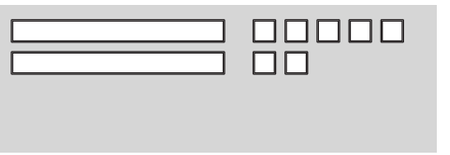
c 

2. Draw a diagram to represent each decimal number.

a 0.3005

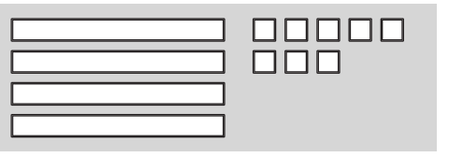
b 0.1502

3. Refer to this diagram.



a Write an addition equation that is represented by the diagram.

b Determine the sum.



4. Refer to this diagram.

a Write a subtraction equation that is represented by the diagram.

b Determine the difference.

Name: ..... Date: ..... Period: .....

5. Consider the expression $2.6 + 0.31$. Write a vertical calculation and determine the sum.

6. Consider the expression $5.972 - 2.87$. Write a vertical calculation and determine the difference.

7. Mai wrote a vertical calculation for the expression $8.75 + 3.1$. Her work is shown.

$$\begin{array}{r} 8.75 \\ +\ 3.01 \\ \hline 11.76 \end{array}$$

Did Mai correctly determine the sum? Explain your thinking.

8. Priya wrote a vertical calculation for the expression $0.91 - 0.8$. Her work is shown.

$$\begin{array}{r} 0.91 \\ -\ 0.8 \\ \hline 0.83 \end{array}$$

Did Priya correctly determine the difference? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 5.03

1. Determine which decimals have the same value as 0.81. Select *all* that apply.

- ☐ **A.** 0.80
- ☐ **B.** 0.801
- ☐ **C.** 0.810
- ☐ **D.** 0.8010
- ☐ **E.** 0.8100

2. Determine which expressions have the same value as $1.9 + 0.653$. Select *all* that apply.

- ☐ **A.** $1.9 + 6.5$
- ☐ **B.** $1.9 + 0.653$
- ☐ **C.** $1.009 + 0.653$
- ☐ **D.** $1.900 + 0.653$
- ☐ **E.** $1.9000 + 0.653$

3. Determine which expressions have the same value as $0.05 - 0.0036$. Select *all* that apply.

- ☐ **A.** $0.0500 - 0.0036$
- ☐ **B.** $0.0005 - 0.0036$
- ☐ **C.** $0.050 - 0.003$
- ☐ **D.** $0.05 - 0.36$
- ☐ **E.** $0.05000 - 0.00360$

4. Compute the following sums. Consider drawing base ten diagrams to help with your thinking.

a
$$\begin{array}{r} 0.513 \\ +\ 0.168 \\ \hline \end{array}$$

b
$$\begin{array}{r} 0.951 \\ +\ 0.04 \\ \hline \end{array}$$

c
$$\begin{array}{r} 6.4 \\ +\ 0.399 \\ \hline \end{array}$$

Name: Date: Period:

5. Compute the following differences. Consider drawing base ten diagrams to help with your thinking.

a $\begin{array}{r} 310.8 \\ -\ 6.3 \\ \hline \end{array}$

b $\begin{array}{r} 14.39 \\ -\ 4.1 \\ \hline \end{array}$

c $\begin{array}{r} 1.8 \\ -\ 0.54 \\ \hline \end{array}$

The table shows the three medalist teams of the Special Olympics Unified Snowboarding at the X Games in 2019. Use this information for Problems 6–7.

Rank	Name	Run 1	Run 2
1	Henry Meece-Chris Klug	18.865	15.916
2	Scotty Lago-Juan Guentrutrsipai	15.867	19.02
3	Mike Schultz-Christopher Perdue	16.56	18.81

6. Each team had two runs. Determine each team's total time by calculating the sum of their times for the two runs. Explain your thinking.

a Henry Meece-Chris Klug

b Scotty Lago-Juan Guentrutrsipai

c Mike Schultz-Christopher Perdue

7. Determine the difference in times for each team's two runs by subtracting their fastest time from their slowest time. Explain your thinking.

a Henry Meece-Chris Klug

b Scotty Lago-Juan Guentrutrsipai

c Mike Schultz-Christopher Perdue

8. Diego wants to subtract 1.89 from 3, but he is not sure how to proceed because 3 is a whole number and 1.89 is a decimal. Determine the difference, and explain how Diego could solve this problem.

Name: ..... Date: ..... Period: .....

Additional Practice 5.04

1. Determine the correct calculation for $6.3 + 8.12$.

A.
$$\begin{array}{r} 6.3 \\ +\ 8.12 \\ \hline 8.75 \end{array}$$

B.
$$\begin{array}{r} 6.30 \\ +\ 8.12 \\ \hline 14.42 \end{array}$$

C.
$$\begin{array}{r} 0\,6.3 \\ +\ 8.1\,2 \\ \hline 8.7\,5 \end{array}$$

2. Determine the correct calculation for $19 - 1.4$.

A.
$$\begin{array}{r} 1\,9 \\ -\ 1.4 \\ \hline 0.5 \end{array}$$

B.
$$\begin{array}{r} 1\,9.0 \\ -\ 1.4\,0 \\ \hline 0.5\,0 \end{array}$$

C.
$$\begin{array}{r} 19.0 \\ -\ 1.4 \\ \hline 17.6 \end{array}$$

3. Determine and write the missing digits in each calculation so that the value of each sum is correct.

a
$$\begin{array}{r} 0.\,8\,0\,5 \\ +\square\square\square\square \\ \hline 1.0\,0\,0 \end{array}$$

b
$$\begin{array}{r} 3.0\,7\,1 \\ +\square\square\square\square \\ \hline 10.0\,0\,0 \end{array}$$

c
$$\begin{array}{r} 73.3\,9\,2 \\ \square\square\square\square \\ \hline 100.0\,0\,0 \end{array}$$

4. Determine and write the missing digits in each calculation so that the value of each difference is correct.

a
$$\begin{array}{r} 0.5 \\ -\square\square\square\square \\ \hline 0.1\,3\,8 \end{array}$$

b
$$\begin{array}{r} 5 \\ -\square\square\square\square \\ \hline 0.0\,9\,5 \end{array}$$

c
$$\begin{array}{r} 50 \\ -\square\square\square\square \\ \hline 18.9\,9\,2 \end{array}$$

Name: Date: Period:

5. The seeding results of the Para Snow BikeCross at the 2020 Winter X Games are shown in the table.

Rank	Name	Time (seconds)
1	Doug Henry	53.79
2	Will Posey	54.296
3	Brandon Dudley	58.418

a Calculate the time difference between the first and second places.

b Calculate the time difference between the first and third places.

6. Using the times from Problem 5, what is the total time of the first, second, and third places?

7. Consider these expressions.

Expression 1	Expression 2	Expression 3
$6.8 - 0.0031$	$6.79 - 0.0013$	$6.78 - 0.031$

Jada says that Expression 1 has the greatest value. Do you agree with Jada? Explain your thinking.

8. Three times for the 100 m women's breaststroke at the 2016 Summer Olympics are shown.

Katie Meili (USA)	Lilly King (USA)	Yulia Efimova (Russia)
1:05.69	1:04.93	1:05.50

a Order the swimmers by time, from first place (gold) to third place (bronze).

b Calculate the difference between first place (gold) and third place (bronze). Explain what the difference in time means.

Name: ..... Date: ..... Period: .....

Additional Practice 5.05

1. Select *all* expressions that are equivalent to $(0.5) \cdot (0.8)$.

- ☐ **A.** $5 \cdot (0.1) \cdot 8 \cdot (0.01)$
- ☐ **B.** $5 \cdot (0.01) \cdot 8 \cdot (0.1)$
- ☐ **C.** $5 \cdot (0.1) \cdot 8 \cdot (0.1)$
- ☐ **D.** $5 \cdot (0.01) \cdot 8 \cdot (0.01)$
- ☐ **E.** $5 \cdot \frac{1}{10} \cdot 8 \cdot \frac{1}{10}$
- ☐ **F.** $5 \cdot 8 \cdot \frac{1}{10} \cdot \frac{1}{10}$
- ☐ **G.** $5 \cdot 8 \cdot \frac{1}{10}$
- ☐ **H.** $\frac{5}{10} \cdot \frac{8}{10}$

2. Determine the product. Use your work from parts a–d to answer part e. Show your thinking.

a $15 \cdot (0.1)$

b $38 \cdot \frac{1}{10}$

c $3.1 \cdot 0.1$

d $1.84 \cdot \frac{1}{10}$

e What happens to the decimal point of the original number when you multiply it by $\frac{1}{10}$? Explain your thinking.

3. Determine the product. Show your thinking.

a $151 \cdot \frac{1}{100}$

b $8.3 \cdot (0.01)$

c $1.95 \cdot \frac{1}{100}$

d $9.436 \cdot (0.01)$

Name: Date: Period:

4. Which expressions have the same value as $(0.316) \cdot (0.9)$. Select *all* that apply.

- ☐ **A.** 0.02844
- ☐ **B.** $316 \cdot 9 \cdot (0.0001)$
- ☐ **C.** $316 \cdot \frac{1}{1{,}000} \cdot 9 \cdot \frac{1}{10}$
- ☐ **D.** $316 \cdot \frac{1}{1{,}000} \cdot 9 \cdot \frac{1}{100}$
- ☐ **E.** $316 \cdot 9 \cdot \frac{1}{1{,}0000}$

5. Calculate the value of each expression by first writing the decimal factors as fractions, and then writing their product as a decimal. Show your thinking.

a $(5.7) \cdot 3$

b $(0.8) \cdot (6.4)$

c $(0.1) \cdot (0.23)$

d $(0.48) \cdot (0.29)$

6. Calculate the value of each expression by first writing the decimal factors as fractions, and then writing their product as a decimal.
Show your thinking.

a $(1.6) \cdot (0.006)$

b $(0.007) \cdot (0.038)$

7. Noah calculated the value of the expression $(0.18) \cdot (0.09)$ by first writing the decimal factors as fractions, and then writing their product as a decimal. Noah's work is shown: $\frac{18}{100} \cdot \frac{9}{10} = \frac{162}{1000} = 0.162$. Is Noah correct? Explain your thinking.

8. Tyler explains what happens to a decimal point of a number that is multiplied by 0.01. "When I multiply by the decimal 0.01, move the decimal point two places to the right because multiplying by $\frac{1}{100}$ is the same as dividing by 100." Is Tyler correct? Explain your thinking.

Name: _____ Date: _____ Period: _____

Additional Practice 5.06

1. Which expression is equivalent to $18 + 54$ and uses the greatest common factor of the two numbers being added in the expression?

A. $3(6 + 18)$

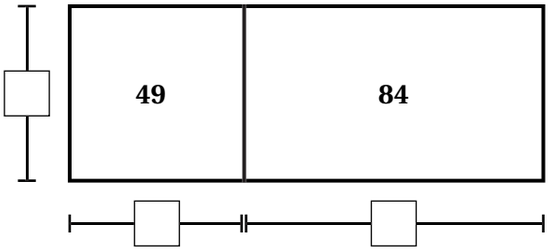
B. $6(3 + 9)$

C. $9(2 + 6)$

D. $18(1 + 3)$

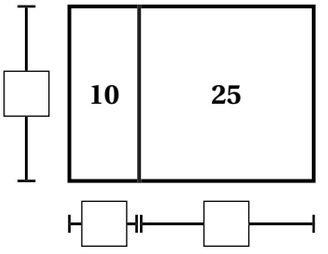
Problems 2–4. Use the area models to rewrite each expression using parentheses.

2. $49 + 84$



_____ (_____ + _____)

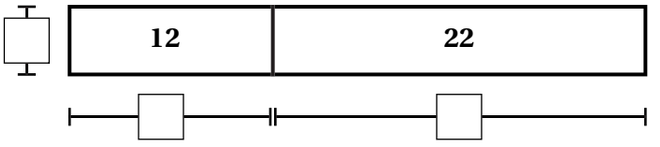
3. $10 + 25$



_____ (_____ + _____)

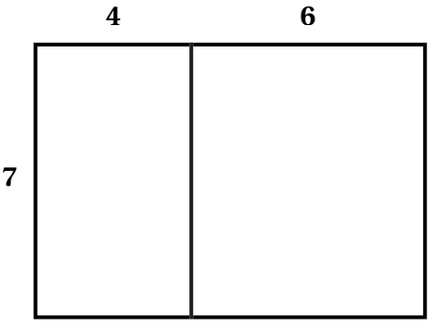
Name: ..... Date: ..... Period: .....

4. $12 + 22$



..... (..... + ...)

5. Select *all* the expressions that represent the area of the largest rectangle in the figure.



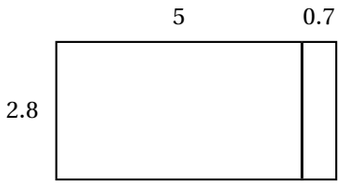
- ☐ **A.** $7\,(4 + 6)$
- ☐ **B.** 7×10
- ☐ **C.** $7 + 4 + 6$
- ☐ **D.** $7 \times 4 + 6$
- ☐ **E.** $7 \times 4 + 7 \times 6$
- ☐ **F.** $7 \times 4 \times 6$

Name: ..... Date: ..... Period: .....

Additional Practice 5.07

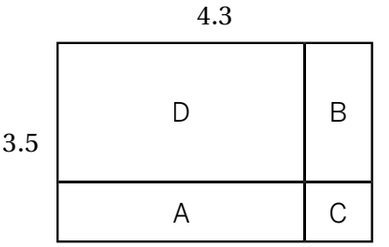
1. Write a multiplication expression that represents each area diagram.

a



b

2. The rectangle has an area in square units and has been partitioned into four smaller rectangles. For each expression, write the name of the smaller rectangle whose area matches each expression. Then determine the area of each smaller rectangle.



a $(0.3) \cdot 3$

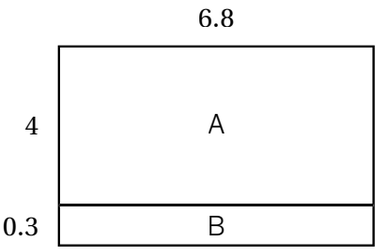
b $3 \cdot 4$

c $(0.3) \cdot (0.5)$

d $4 \cdot (0.5)$

e Determine the total area of the rectangle.

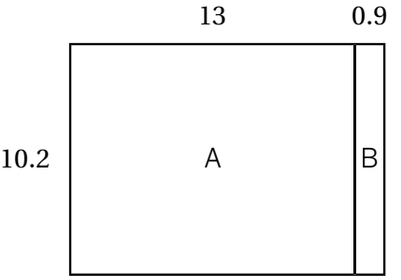
3. The area diagram represents $(6.8) \cdot (4.3)$.



a Determine the areas of Rectangles A and B.

b What is the area of the larger 6.8 by 4.3 rectangle?

4. The area diagram represents $(13.9) \cdot (10.2)$.



a Determine the areas of Rectangles A and B.

b What is the area of the larger 13.9 by 10.2 rectangle?

Name: ..... Date: ..... Period: .....

5. Consider the expression $(0.24) \cdot (0.13)$.

a Draw an area diagram to represent this expression.

b Use a vertical calculation to determine the product.

6. Consider the expression $(3.5) \cdot (1.1)$.

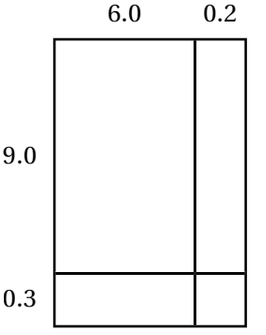
a Draw an area diagram to represent this expression.

b Use a vertical calculation to determine the product.

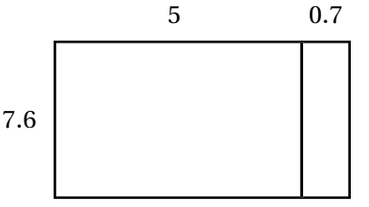
7. Tyler drew an area diagram to represent the expression $(6.2) \cdot (9.3)$.

a Tyler's teacher told him that there is another way he could use an area diagram to represent the same expression. Draw another area diagram that Tyler could use.

b Use a vertical calculation to determine the product.



8. Bard drew this area diagram to represent the expression $(5.7) \cdot (7.6)$, and claimed to be able to use it to determine the area of the rectangle. Kiran said Bard's area diagram is not correct because it only shows two partitioned rectangles, when instead it should show four partitioned rectangles. Who is correct? Explain your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 5.08

1. Evaluate each expression.

a $3 \cdot (0.5)$

b $(6.2) \cdot 3$

c $2 \cdot (16.3)$

d $(0.9) \cdot 5$

2. A pound of turkey lunch meat at the deli costs $\$7.49$ per pound. Lin wants to purchase 2.25 lb of turkey for the week. Determine how much Lin will pay, rounded to the nearest cent. Show your thinking.

3. Use vertical calculations to determine each product. Show your thinking.

a $(3.4) \cdot (7.6)$

b $(1.2) \cdot (9.9)$

4. Use vertical calculations to determine each product. Show your thinking.

a $(0.54) \cdot (0.8)$

b $(8.79) \cdot (6.04)$

Name: Date: Period:

5. Which weighs more and by how much: A dog that weighs 5.4 kg or a cat that weighs 10.25 lb? Use the conversion 1 kg $= 2.2$ lb. Show your thinking.

6. A pound of strawberries costs $\$4.29$ and a pound of bananas costs $\$0.69$. What is the combined cost of 1.5 lb of strawberries and 0.8 lb of bananas? Round your answer to the nearest cent. Show your thinking.

7. Four polygons with their dimensions are given.

- A parallelogram with a base of 6.437 cm and a height of 5.5 cm.
- A square with side lengths of 5.91 cm.
- A triangle with a base of 17.8 cm and a height of 4.3 cm.
- A rectangle that is 14.25 cm wide and 2.5 cm long.

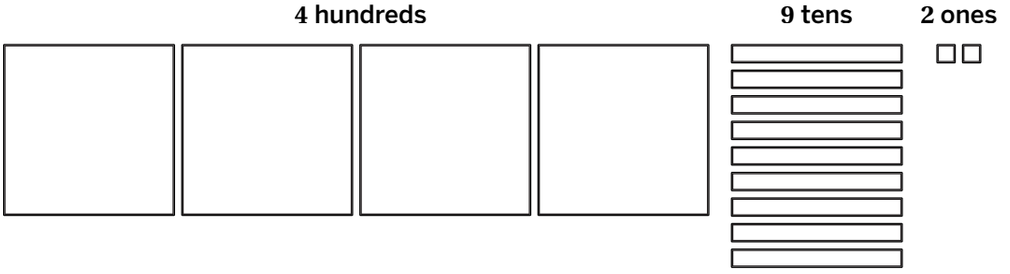
Noah says that the square has the greatest area. Is Noah correct? Explain your thinking.

8. There are 2.75 g of sugar in 1 oz of applesauce. Shawn says this means that there are 165 g of sugar in 6 oz of applesauce. Do you agree or disagree with Shawn? Explain your thinking.

Name: ..... Date: ..... Period: .....

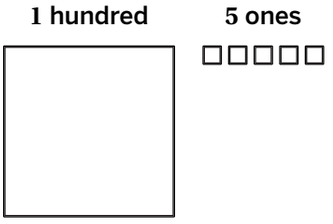
Additional Practice 5.09

1. Priya used a base ten diagram to divide $492 \div 4$. She started by representing 492.



To show the division, Priya made 4 groups, each with 1 hundred. Then she put the tens and ones in each of the 4 groups. Show what Priya's diagram looked like.

2. Kiran used a base ten diagram to divide $105 \div 3$. He started by representing 105.



To show the division, Kiran made 3 groups. There weren't enough hundreds for each group, so he traded 1 hundred for 10 tens. Then he put the tens and ones in each of the 3 groups. Show what Kiran's diagram looked like.

3. Show how to calculate $625 \div 5$ using the partial quotients method.

4. Show how to calculate $2{,}478 \div 7$ using the partial quotients method.

Name: Date: Period:

5. Here is an incomplete calculation of $738 \div 6$ using the long division algorithm. Complete the calculation by filling in the empty boxes with the appropriate missing numbers that would make the calculation correct.

$$
\begin{array}{r}
1\square\square \\
6\overline{)\,7\;3\;8} \\
-\;6 \\
\hline
\;1\square \\
-\;1\;2 \\
\hline
1\;8 \\
-\;\square\square \\
\hline
\square
\end{array}
$$

6. Calculate $4{,}896 \div 12$ using a method of your choice. Show your thinking.

7. Elena said she should use a base ten diagram to evaluate $1{,}288 \div 46$. Clare said she should use a long division method to evaluate $1{,}288 \div 46$.

a Who do you agree with? Explain your thinking.

b Calculate the quotient using the person's method that you agree with.

Name: ..... Date: ..... Period: .....

Additional Practice 5.10

1. Use long division to match each fraction and decimal.

Fraction	Decimal
a. $\frac{1}{4}$	..... 0.8
b. $\frac{4}{5}$	..... 0.3
c. $\frac{3}{10}$	..... 0.5
d. $\frac{4}{8}$	..... 0.25

2. Use long division to show that the fraction and decimal in each pair are equal.

a $\frac{7}{10}$ and 0.7 **b** $\frac{9}{50}$ and 0.18 **c** $\frac{12}{25}$ and 0.48

3. Use long division to determine each quotient. Write your answer as a decimal.

a $26 \div 5$

b $75 \div 8$

c $79 \div 4$

4. Use long division to determine each quotient. Write your answer as a decimal.

a $324 \div 5$

b $509 \div 8$

c $951 \div 6$

Name: Date: Period:

5. Use long division to determine each quotient. Write your answer as a decimal.

a $240 \div 32$

b $1{,}650 \div 16$

c $8{,}415 \div 20$

6. Complete the table by using long division to determine the salinity of the water sources. Show your thinking and express any remainders as decimals.

Water source	Salt (g)	Water (liters)	Salinity (g/l)
Indian Ocean	1,235	38	
Pacific Ocean	1,352	40	
Arctic Ocean	658	20	

7. Mai reasoned, "$\frac{22}{25}$ is equivalent to $\frac{44}{50}$ and to $\frac{88}{100}$, so the decimal of $\frac{22}{25}$ is 0.88."

a Use long division to show that Mai is correct.

b Use long division to determine whether the decimal of $\frac{44}{50}$ is also 0.88.

8. Noah calculated $1{,}124 \div 20$. Priya said he made a mistake using long division. Is Priya correct? Explain your thinking.

Noah's work:

$$
\begin{array}{r}
5.62 \\
20\overline{)1124.00} \\
-\ 100 \\
\hline
124 \\
-\ 120 \\
\hline
40 \\
-\ 40 \\
\hline
0
\end{array}
$$

Name: ..... Date: ..... Period: .....

Additional Practice 5.11

1. Without evaluating, which expression(s) have the same value as $35 \div 10$? Select *all* that apply.

- ☐ **A.** $0.35 \div 10$
- ☐ **B.** $3.5 \div 1$
- ☐ **C.** $350 \div 100$
- ☐ **D.** $350 \div 1{,}000$
- ☐ **E.** $3{,}500 \div 100$

2. Without evaluating, which expression(s) have the same value as $2{,}100 \div 30$? Select *all* that apply.

- ☐ **A.** $210 \div 0.3$
- ☐ **B.** $21 \div 3$
- ☐ **C.** $2.1 \div 0.03$
- ☐ **D.** $21 \div 0.3$
- ☐ **E.** $210 \div 3$

3. Evaluate the expression $\left(5{,}607 \cdot \frac{1}{10}\right) \div 5$. Show your thinking.

4. Evaluate the expression $\left(42{,}959 \cdot \frac{1}{10}\right) \div 7$. Show your thinking.

5. Use long division to determine each quotient. Show your thinking.

a $15.4 \div 28$

b $6.86 \div 2$

c $529 \div 0.5$

Name: Date: Period:

6. Consider the expression $84 \div 1.5$.

a Use what you know about related expressions to write a new division expression with a whole number divisor. Explain your thinking.

b Evaluate the expression you wrote for part a. Show your thinking.

7. Tyler paid $\$37.36$ for four 1-lb containers of protein powder. How much is each container of protein powder? Show your thinking.

8. Lin used long division to determine the quotient of $42 \div 1.4$. Her work is shown. Is Lin *correct* or *incorrect*? If she is correct, write a related expression Lin could use to divide. If Lin is incorrect, explain her error and determine the correct quotient.

$$\begin{array}{r} 0.3 \\ 1.4\overline{)\,4\,2} \\ -\,4\,2 \\ \hline 0 \end{array}$$

Name: ..... Date: ..... Period: .....

Additional Practice 5.12

1. Without evaluating, which expression(s) have the same value as $54.4 \div 1.7$? Select *all* that apply.

- ☐ **A.** $544 \div 17$
- ☐ **B.** $540 \div 17$
- ☐ **C.** $5{,}440 \div 170$
- ☐ **D.** $544 \div 0.17$
- ☐ **E.** $5.44 \div 0.17$

2. Consider the expression $0.0063 \div 0.009$.

a Write two different division expressions that have the same quotient as $0.0063 \div 0.009$.

b Evaluate $0.0063 \div 0.009$. Show your thinking.

3. Bard said, "To determine the value of $5.064 \div 8$, I can divide $5{,}064$ by 80."

a Do you agree with Bard? Explain your thinking.

b Calculate the quotient of $5.064 \div 8$. Show your thinking.

4. Clare said, "To determine the value of $730.2 \div 0.6$, I can divide $7{,}302$ by 6.

a Do you agree with Clare? Explain your thinking.

b Calculate the quotient of $730.2 \div 0.6$.

5. A bag of quarters weighs 8.5 kg. Each quarter weighs 5.67 g. Which is the best estimate for the number of quarters in the bag? Show your thinking.

- **A.** $15{,}000$
- **B.** $1{,}500$
- **C.** 150
- **D.** 15

Name: Date: Period:

6. Different brands of water bottles containing 16.9 oz are sold in different quantities for different prices at a local grocery store. Complete the table to determine the unit cost for each brand.

Brand	Price ($)	Quantity	Unit cost ($)
Purely Water	4.40	40	
Spring Water	4.80	32	
Mountain Water	3.12	12	

7. Evaluate each expression. Show your thinking.

a $11.9 \div 1.7$

b $0.036 \div 0.02$

8. Diego says, "To determine the value of $180 \div 1.2$, I can divide $18{,}000$ by 120." Mai says, "To determine the value of $180 \div 1.2$, I can divide $1{,}800$ by 12. "

a Who is correct? Explain your thinking.

b Calculate the quotient of $180 \div 1.2$. Show your thinking.

Name: Date: Period:

Additional Practice 5.13

1. Estimate whether $12 \cdot 0.7$ is greater than or less than 12. Explain your thinking.

2. Estimate whether $2.8 \cdot 2.8$ is greater than or less than 5. Explain your thinking.

3. Estimate whether $6.25 \cdot 3.5$ is greater than or less than 20. Explain your thinking.

4. Select *all* the expressions that have a value of 9.

- ☐ **A.** $2.7 \div 0.3$
- ☐ **B.** $0.027 \div 0.003$
- ☐ **C.** $0.27 \div 3$
- ☐ **D.** $27 \div \frac{3}{100}$
- ☐ **E.** $\frac{27}{10} \div \frac{3}{10}$

Problems 5–6. Zara is listening to a podcast. She has a limited amount of time, so she listens to the podcast at $1.5 \times$ speed.

5. Complete the table to determine how long it will take to listen to each of the first three episodes.

	Duration at Regular Speed (minutes)	Duration at $1.5 \times$ Speed (minutes)
Episode 1	45	
Episode 2	49.5	
Episode 3	50.4	

Name: Date: Period:

6. It takes Zara 34.5 minutes to listen to Episode 4 at 1.5x speed. What is the length of Episode 4 at regular speed?

A. 51.25 minutes

B. 51.5 minutes

C. 51.75 minutes

D. 52 minutes

Problems 7–8. Hartwell is listening to a French audiobook to help learn French. The first lesson in the audiobook is 45 minutes long.

7. Hartwell listens to the first lesson at 0.5x speed. How long does it take?

8. How long does the first lesson take if Hartwell plays it at 1.25x speed?

A. 30 minutes

B. 36 minutes

C. 42 minutes

D. 48 minutes

Name: ..... Date: ..... Period: .....

Additional Practice 5.14

A grocery store is having a weekend sale in their produce department. The items on sale are shown in the table. Use this information for Problems 1–4.

Item	Price per lb ($)
Watermelon	1.25
Strawberries	0.77
Bananas	0.28
Apples	1.40
Carrots	1.50
Celery	0.98
Onions	0.70

1. Kiran purchases a watermelon that weighs 5.2 lb and 2 lb of apples. How much does Kiran pay? Show your thinking.

2. Tyler purchases 3 lb of strawberries, a 4 lb watermelon, and 4 lb of bananas. Diego purchases $\frac{1}{2}$ lb of bananas, a 3.4 lb watermelon, and 1 lb of strawberries.

a Who paid more? Show your thinking.

b By how much? Show your thinking.

3. Elena purchases $\frac{3}{4}$ lb of carrots, 1.5 lb of celery, and $\frac{1}{2}$ lb of onions to make soup. How much does Elena pay? Round to the nearest cent. Show your thinking.

4. Jada purchases 5.5 lb of produce. She wants to determine how much her produce weighs in kg and thinks she should use multiplication. Is Jada correct? Use the conversion factor $1 \text{ kg} = 2.2$ lb to determine the weight in kilograms.

5. Determine each sum. Show your thinking.

a $51.7 + 22.8$

b $17.9 + 3.805$

c $28 + 6.09$

Name: Date: Period:

6. Determine each difference. Show your thinking.

a $51.7 - 22.8$

b $17.9 - 3.805$

c $28 - 6.09$

7. Determine each product. Show your thinking.

a $12 \cdot (14.25)$

b $(3.8) \cdot (2.5)$

c $(5.83) \cdot (17.1)$

8. Determine each quotient. Show your thinking.

a $0.456 \div 3$

b $3 \div 8$

c $1.68 \div 0.8$

Name: Date: Period:

Additional Practice 5.15

1. Which value is 0.3 expressed as a percentage?

A. 3%

B. 0.03%

C. 30%

D. 0.003%

2. Match each percent with its decimal equivalent.

a. 2.7% ____ 0.207

b. 20.7% ____ 2.7

c. 270% ____ 0.0207

d. 2.07% ____ 0.27

e. 27% ____ 0.027

Problems 3–6. Determine the missing values in each row of the table.

	Percent (%)	Decimal	Fraction
3.	120		
4.		0.6	$\frac{3}{5}$
5.	80		
6.			$\frac{2}{5}$

7. Everly wants to find the percent equivalent to the decimal 2.9. Everly states that she needs to multiply 2.9 by 100. Is she correct? Explain your thinking.

Name: Date: Period:

8. What is 2% of 9? Select *all* the expressions that apply.

- ☐ **A.** $\frac{2}{100} \times 9$
- ☐ **B.** $\frac{2}{10} \times 9$
- ☐ **C.** 0.02×9
- ☐ **D.** 0.2×9
- ☐ **E.** 0.002×9

Problems 9–10. Maria needs to calculate 20% of 90. She sets up the expression as $\frac{1}{5} \cdot 90$.

9. Is her expression correct? Explain your thinking.

10. What is 20% of 90?

- **A.** 15
- **B.** 16
- **C.** 17
- **D.** 18

Name: Date: Period:

Additional Practice 5.16

1. Circle the expression that has a greater value.

9% of 180 1.8% of 90 They have the same value.

Problems 2–5. Alicia sells art prints on her online shop. Every week, she sells $\$550$ of art prints. She tries to spend no more than 6% of her weekly art print sales on art supplies.

2. Write an expression to represent how much money Alicia spends on art supplies every week.

3. How much money, at most, does Alicia spend on art supplies each week?

4. Alicia puts 11% of her weekly art print sales into a savings account for an upcoming art fair. How much money does Alicia save each week?

5. Alicia recently had to spend $\$99.00$ to renew her website hosting platform. What percent of her weekly art print sales did she spend on website maintenance?

A. 0.18%

B. 9%

C. 18%

D. 90%

Name: Date: Period:

Problems 6–7. Capri is remodeling their kitchen. They went to the hardware store and purchased these items.

Items	Cost ($)
Hammer	13.57
Wood	27.25
Nails	5.25
Screwdriver	9.50
Paint	12.66
Paintbrush	4.80
Floor tiles	35.97
Total	**109.00**

6. Floor tiles are the most expensive item. What percent of the total cost are the floor tiles?

A. 30%

B. 31%

C. 32%

D. 33%

7. What percentage of the total hardware store bill is wood? Show or explain your thinking.

Grade 6 | Unit 6

Additional Practice

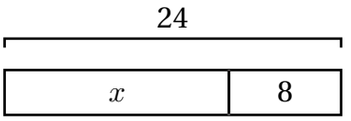
Practice Problems

Name: ..... Date: ..... Period: .....

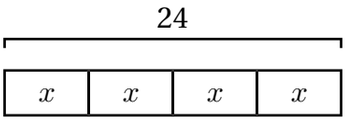
Additional Practice 6.01

1. Determine the value of x in each tape diagram.

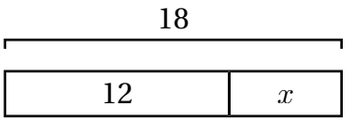
a



b

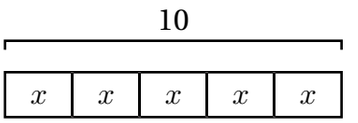


2. Which equations could represent the tape diagram? Select *all* that apply.



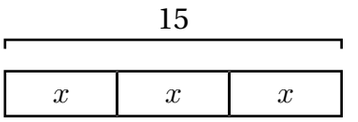
- ☐ **A.** $12 - x = 18$
- ☐ **B.** $12 + x = 18$
- ☐ **C.** $12 = 18 + x$
- ☐ **D.** $x = 18 + 12$
- ☐ **E.** $18 - x = 12$

3. Which equations could represent the tape diagram? Select *all* that apply.



- ☐ **A.** $x + x + x + x + x = 10$
- ☐ **B.** $x = 10 \div 5$
- ☐ **C.** $5 \div 10 = x$
- ☐ **D.** $5 \cdot x = 10$
- ☐ **E.** $10 + 10 + 10 + 10 + 10 = x$
- ☐ **F.** $10 = x \cdot 5$

4. Consider the tape diagram shown.



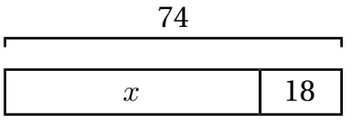
a Write an addition equation that represents the tape diagram.

b Write a multiplication equation that represents the tape diagram.

c Write a division equation that represents the tape diagram.

Name: ..... Date: ..... Period: .....

5. Consider the tape diagram shown

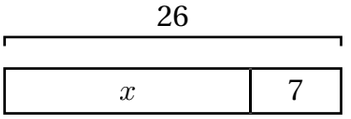


a Write an addition equation that represents the tape diagram.

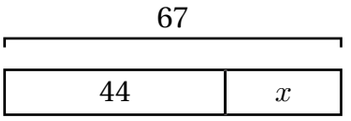
b Write a subtraction equation that represents the tape diagram.

6. Determine the value of x in each tape diagram.

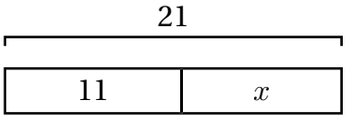
a



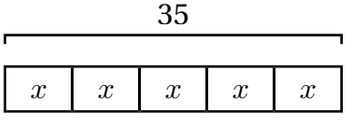
b



7. Consider the tape diagram shown. How does the diagram show that $x + 11$ has the same value as 21?



8. Consider the tape diagram shown. Diego says there are many equations that represents this tape diagram, such as $x + x + x + x + x = 35$. Is Diego correct? Explain your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 6.02

Problems 1–4: Willow and her friend made 34 ounces of hot chocolate. Willow drank 16 ounces of the hot chocolate. There are x ounces of hot chocolate left.

1. Draw a tape diagram to represent the situation.

2. Select *all* the equations that could represent this situation.

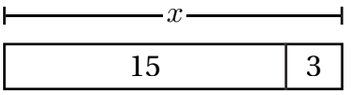
- ☐ **A.** $34 + 16 = x$
- ☐ **B.** $34 - 16 = x$
- ☐ **C.** $16x = 34$
- ☐ **D.** $x + 16 = 34$
- ☐ **E.** $34 \div 16 = x$

3. Determine the solution to one of the equations you selected in Problem 2.

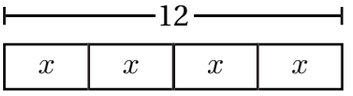
4. Explain the solution's meaning in this situation.

Name: ..... Date: ..... Period: .....

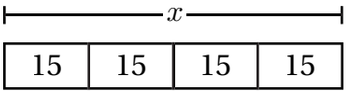
5. Match each equation to the tape diagram that represents it.

a 

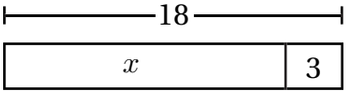
..... $18 - 3 = x$

b 

..... $15 + 3 = x$

c 

..... $x \div 4 = 15$

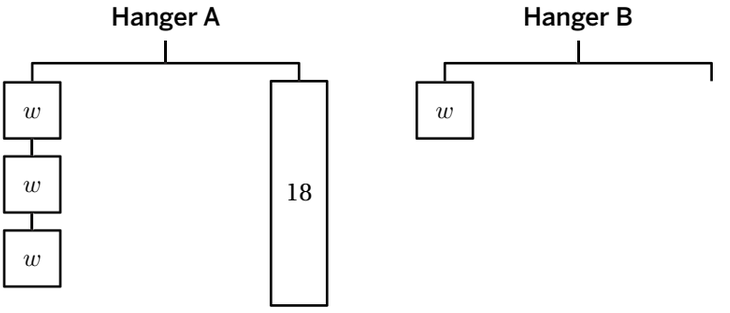
d 

..... $4x = 12$

Name: ..... Date: ..... Period: .....

Additional Practice 6.03

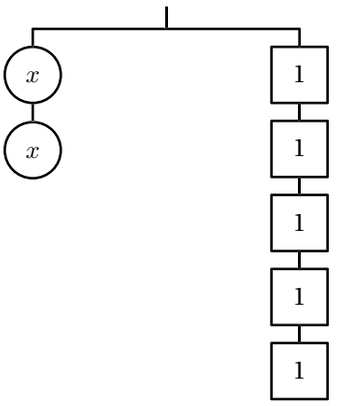
Refer to Hangers A and B to complete Problems 1 and 2.



1. Hanger A is balanced. Write an equation that represents Hanger A.

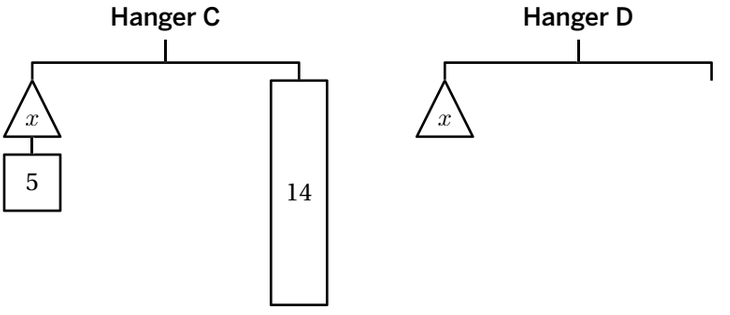
2. Balance Hanger B by completing the right side of the hanger. Then write an equation to represent the balanced hanger.

3. Which equations match the hanger diagram? Select *all* that apply.



- ☐ **A.** $2x = 1 + 1 + 1 + 1 + 1$
- ☐ **B.** $x + x = 1$
- ☐ **C.** $x + 3 = 5$
- ☐ **D.** $x + x = 5$
- ☐ **E.** $2x = 5$

4. Refer to Hangers C and D.



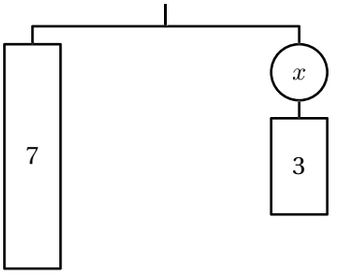
a Hanger C is balanced. Write an equation that represents Hanger C.

b Balance Hanger D by completing the right side of the hanger. Then write an equation to represent the balanced hanger.

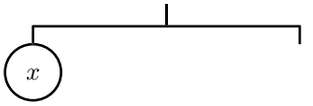
Name: ..... Date: ..... Period: .....

Hangers E and G are balanced. Refer to Hangers E, F, G, and H as you complete Problems 5–7.

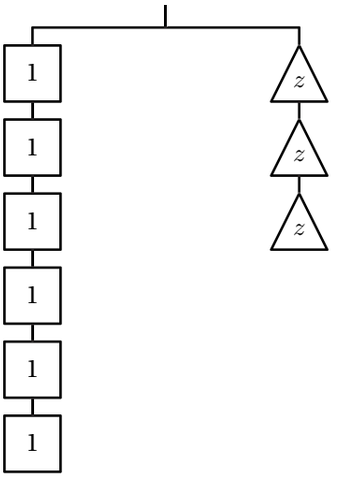
Hanger E



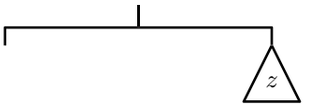
Hanger F



Hanger G



Hanger H



5. Write equations that represent Hangers E and G.

Hanger E: **Hanger G:**

6. Balance Hangers F and H by completing the empty sides of the hangers. Then write equations that represent Hanger F and Hanger H.

Hanger F: **Hanger H:**

7. Shawn wants to create a balance hanger by using only x and z. Write an equation that Shawn could use. Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 6.04

1. Write whether each equation is *true* or *false*.

a $11 + 17 = 14 + 14$

b $4 \cdot 6 = 25$

c $4\frac{1}{3} - 1\frac{2}{3} = 2\frac{1}{3}$

d $6 = 36 \div 6$

2. Match each equation with its solution.

Equation	Solution
a $6.8 - e = 0.8$	..... $\frac{8}{3}$
b $2a = 6.8$	..... 13.6
c $\frac{3}{8} \cdot f = 1$	..... $1\frac{3}{8}$
d $c \div 2 = 6.8$	 6
e $g \div \frac{3}{8} = 1$	..... 4.8
f $b + 2 = 6.8$	..... $\frac{3}{8}$
g $d + \frac{5}{8} = 2$	..... 3.4

3. A bottle of ketchup had 44 oz in it. After a family used k ounces, 18 oz was left.

a Write an equation to represent this scenario.

b If you substitute 24 or 26 as the value for k, does either value make the equation true? Explain your thinking.

Name: ..... Date: ..... Period: .....

4. Clare split 144 beads among x friends. Each friend received 18 beads.

a Write an equation to represent this scenario.

b If you substitute 7 or 8 as the value for x, does either value make the equation true? Explain your thinking.

5. A group of five friends earn a total of $\$50$ raking leaves in their neighborhood. Each friend earns the same amount of money, x dollars. Which equation represents this scenario?

A. $5 + 50 = x$

B. $5 \cdot 50 = x$

C. $5 \cdot x = 50$

D. $x - 5 = 50$

6. A soccer team played 18 games in their season. The team won x games and lost 4 games. Select *all* the equations that represent this scenario.

- ☐ **A.** $18 = x - 4$
- ☐ **B.** $4 + x = 18$
- ☐ **C.** $x = 18 - 4$
- ☐ **D.** $18 - x = 4$
- ☐ **E.** $4 = 18 + x$

7. Is $x = 24$ a solution to the equation $\frac{3}{4}x = 18$? Explain your thinking.

8. Noah says that $x = 7.5$ is a solution to the equation $x + 6.1 = 13.4$. Is Noah correct? Explain your thinking.

Name: Date: Period:

Additional Practice 6.05

Problems 1–3: Izzy reads 2.5 books each month. After x months, Izzy has read 12.5 books.

1. Write an equation that could represent this situation.

2. Describe the meaning of the x in the situation.

3. How many months did it take for Izzy to read 12.5 books?

Problems 4–5: Here is an equation:

$$y + 3 = 27$$

4. Write a situation that the equation could represent.

5. Describe the meaning of the y in your situation.

Name: Date: Period:

6. Arti buys 7 lemons to make a lemon custard pie. When he makes the pie, he finds that each lemon has 6 seeds. Select *all* the equations that represent the total number of lemon seeds, s.

- ☐ **A.** $s = 6 \div 7$
- ☐ **B.** $7s = 6$
- ☐ **C.** $7 + 60 = s$
- ☐ **D.** $s = 7 \cdot 6$
- ☐ **E.** $s \div 7 = 6$

7. Eloise bought a w-pound bag of bird seed at the store. Each week, Eloise puts 0.25 pounds of seeds in her bird feeder. The bag of bird seed lasted 14 weeks. Select *all* the equations that represents the total weight of the bird seed bag, w.

- ☐ **A.** $w = 0.25 \cdot 14$
- ☐ **B.** $w \div 14 = 0.25$
- ☐ **C.** $14 + 0.25 = w$
- ☐ **D.** $14 \div 0.25 = w$
- ☐ **E.** $14w = 0.25$

Problems 8–10: Willow has $\$85$ to spend on paint at an art supply shop. It costs $\$4.25$ per tube of paint. Willow can buy p tubes of paint.

8. Write an equation for the situation.

9. Solve the equation for p.

10. Describe the solutions' meaning.

Name: Date: Period:

Additional Practice 6.06

1. Diego has 21 sheets of paper in his notebook and s sheets have Diego's written class notes. In this scenario, what does the expression $21 - s$ represent?

Problems 2–3: The variable p represents the number of plants in a greenhouse.

2. What does $p + 3$ represent?

3. What does $\frac{1}{3}p$ represent?

4. Kiara wants to make homemade bread for her family and friends. She needs flour and water for a bread recipe. The directions state that the amount of flour should be 6 cups more than the amount of water. Complete the table to show how much water is needed for different amounts of flour.

Flour (cups)	Water (cups)
10	
14	
17	
x	

Name: Date: Period:

Problems 5–7: Strawberries cost $\$4.50$ per pound. How much would it cost to buy:

5. 3 pounds of strawberries?

6. 7 pounds of strawberries?

7. x pounds of strawberries?

Problems 8–10: Evaluate the expression $2d + 3$ for each value of d. Use the example provided in the table as a guide.

d	$2d + 3$	Value of d
6	$2(6) + 3$	15

8. $d = 7$

9. $d = 0.6$

10. $d = \frac{1}{2}$

Name: Date: Period:

Additional Practice 6.07

Problems 1–3: Here are six expressions.

$3(x + 2)$ $3 + 6x$ $x + x + x + 6$

$(3x + 2) + (3x + 2)$ $x + 3$ $(2x + 3) + (x + 3)$

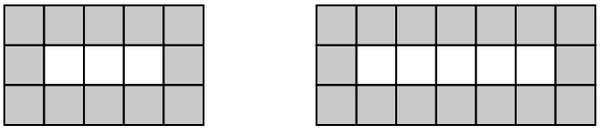
1. Write all of the expressions that are equivalent to $3x + 6$.

2. Create another expression that is equivalent to $3x + 6$.

3. Choose an expression that is not equivalent to $3x + 6$. Explain how you know it is not equivalent.

Name: ..... Date: ..... Period: .....

Problems 4–6: Here are examples of a t-by-1 rectangle.



4. How many border tiles are there in the 3-by-1 rectangle?

5. How many border tiles are in the 5-by-1 rectangle?

6. Tristan wants to create an expression to represent the number of border tiles of a t-by-1 rectangle. Which expression is correct?

A. $t + 6$

B. $2t + 6$

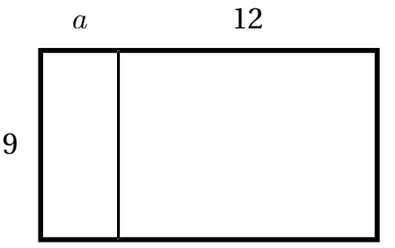
C. $t + 3$

D. $2t + 3$

Name: ..... Date: ..... Period: .....

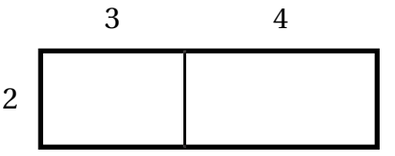
Additional Practice 6.08

1. Select *all* the expressions that represent the area of the largest, outlined rectangle.



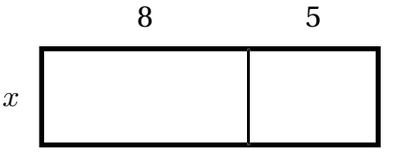
- ☐ **A.** $9a + 108$
- ☐ **B.** $12(a + 9)$
- ☐ **C.** $9 \cdot 12 + 12a$
- ☐ **D.** $9(a + 12)$
- ☐ **E.** $9a + 9 \cdot 12$

2. Select *all* the expressions that represent the area of the largest, outlined rectangle.



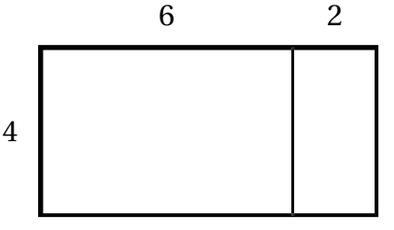
- ☐ **A.** $4 \cdot 2 + 4 \cdot 3$
- ☐ **B.** $2 \cdot 3 + 2 \cdot 4$
- ☐ **C.** $2 \cdot 3 + 4$
- ☐ **D.** $2(4 + 3)$
- ☐ **E.** $3(2 + 4)$

3. Select *all* the expressions that represent the area of the largest, outlined rectangle.



- ☐ **A.** $5x + 8x$
- ☐ **B.** $8x + 40$
- ☐ **C.** $x(5 + 8)$
- ☐ **D.** $5x + 40$
- ☐ **E.** $13x$

4. Select *all* the expressions that represent the area of the largest, outlined rectangle.



- ☐ **A.** $4 + (6 \cdot 2)$
- ☐ **B.** $4(6) + 4(2)$
- ☐ **C.** $24 + 2 \cdot 4$
- ☐ **D.** $4(2) \cdot 4(6)$
- ☐ **E.** $4(2 + 6)$

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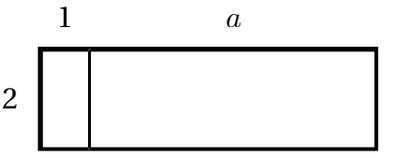
5. Refer to the partitioned rectangle shown.



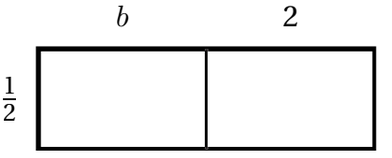
a Write an expression that represents the length of the largest, outlined rectangle.

b Write an expression that represents the width of the largest, outlined rectangle.

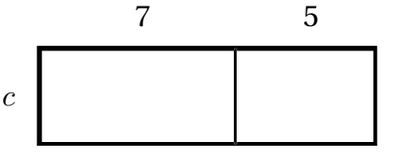
c Write an expression that represents the area of the largest, outlined rectangle as a product of the width and the length.

d Write an expression that represents the area of the largest, outlined rectangle as the sum of the areas of the smaller rectangles.

6. Refer to the partitioned rectangle shown. Bard writes the expression $\frac{1}{2}(b + 2)$ to represent the area of the largest, outlined rectangle. Write another expression that Bard could use to represent the same area.



7. Refer to the partitioned rectangle shown.



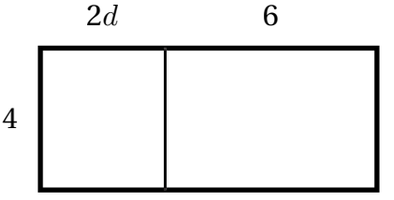
a Write an expression that represents the length of the largest, outlined rectangle.

b Write an expression that represents the width of the largest, outlined rectangle.

c Write an expression that represents the area of the largest, outlined rectangle as a product of the width and the length.

d Write an expression that represents the area of the largest, outlined rectangle as the sum of the areas of the smaller rectangles.

8. Refer to the partitioned rectangle shown. Write *two* different expressions that each represent the total area of the largest, outlined rectangle.



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Additional Practice 6.09

1. For each expression, use the Distributive Property to write an equivalent expression.

a $3(x - 4)$

b $(5 - 7) \cdot x$

c $6x + 9$

d $8x + 12y - 4z$

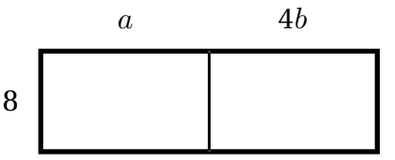
2. Select *all* the expressions that are equivalent to the expression $12x + 24$.

- ☐ **A.** $2(6x + 12)$
- ☐ **B.** $4(4x + 6)$
- ☐ **C.** $6(2x + 4)$
- ☐ **D.** $12(x + 2)$
- ☐ **E.** $24(2x + 1)$

3. Select *all* the expressions that are equivalent to the expression $14a - 28b + 42c$.

- ☐ **A.** $14(a - 2b + 3c)$
- ☐ **B.** $7(2a - 4b + 6c)$
- ☐ **C.** $2(14a - 14b + 21c)$
- ☐ **D.** $14(a - 2b + 6c)$
- ☐ **E.** $7(2a - 4b + 7c)$
- ☐ **F.** $2(7a - 14b + 21c)$

4. Priya writes the area of the partitioned rectangle as the expression $8a + 32b$. Tyler writes the area of the partitioned rectangle as the expression $4(2a + 8b)$.



a Who is correct? Explain your thinking.

b Write two more equivalent expressions that represent the area of the partitioned rectangle.

Name: ..... Date: ..... Period: .....

5. For each expression, use the Distributive Property to write an equivalent expression.

a $\frac{1}{2}(x + 8)$

b $3x(4 - 5)$

c $4xy + 8x$

6. Use the Distributive Property to write *two* expressions that are equivalent to each expression.

a $10x - 30$

b $8(x - 2)$

c $30x + 15y$

7. Select *all* the expressions that are equivalent to the expression $3(8x + 6)$.

- ☐ **A.** $2(8x + 9)$
- ☐ **B.** $6(4x + 3)$
- ☐ **C.** $6 + 24x$
- ☐ **D.** $11x + 18$
- ☐ **E.** $24x + 18$

8. Clare rewrites the expression $12bc + 8bd$ *as* $b(12c + 8d)$.
Andre rewrites the expression $12bc + 8bd$ *as* $4(3bc + 2bd)$.

a Are Clare and Andre's expressions both equivalent to the expression $12bc + 8bd$? Explain your thinking.

b Write an additional equivalent expression to the expression $12bc + 8bd$.

Name: ..... Date: ..... Period: .....

Additional Practice 6.10

1. Rewrite each expression using exponents.

a $9 \cdot 9 \cdot 9$

b $\frac{1}{2} \cdot \frac{1}{2}$

c $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

2. Evaluate each expression.

a 4^2

b 2^8

c $\left(\frac{1}{3}\right)^2$

3. Which expression is equivalent to 8^2?

A. 6

B. 16

C. 32

D. 64

4. Using what you know about the properties of operations, rewrite each expression using a different operation. Do not evaluate.

a 3^3

b 5^4

c 7^5

Name: Date: Period:

5. Select *all* the expressions that are equivalent to the expression 5^4.

- ☐ **A.** 20^2
- ☐ **B.** $5 + 5 + 5 + 5$
- ☐ **C.** 4^5
- ☐ **D.** 625
- ☐ **E.** $5 \cdot 5^3$
- ☐ **F.** 25^2

6. The expression 3^5 is equal to 243. Use this to evaluate each of the following expressions. Show your thinking.

a 3^6

b $3^3 \cdot 3^2$

c 3^4

7. The expression 6^4 is equal to $1{,}296$. Use this to evaluate each of the following expressions. Show your thinking.

a 6^3

b $\frac{6^4}{6^2}$

c $6^2 \cdot 6^2$

8. The population of New York is about 8.4 million. Is this number closer to 10^6 or 10^7? Explain your thinking.

Name: Date: Period:

Additional Practice 6.11

1. Evaluate each expression.

a $12 + 3^2$

b $6^2 \cdot 5$

c $35 - 4^2$

d $100 - 7^2$

e $5^2 \div 5$

f $15 \cdot \left(\frac{1}{3}\right)^2$

2. Evaluate each expression.

a $10^3 - 8^2$

b $16 - 10^1$

c $20 + 2^4$

d $3^3 \cdot 5$

e $4 \cdot \left(\frac{1}{2}\right)^2$

f $\left(\frac{1}{6} \cdot 6\right)^6$

3. Determine whether the two expressions in each row are equivalent. Write *equivalent* or *not equivalent*.

Column A	Column B	*Equivalent* or *not equivalent*?
$8^2 + 10$	$10 + 2^6$	
$4^2 + 2^2$	$45 - 5^2$	
$(3 \cdot 4)^2$	$3^2 + 4^2$	
$9^3 + 9^2$	$3^4 \cdot 10$	
$25^2 + 400$	$10^3 - 25$	
$6 \cdot 4^1$	$12 \cdot 2^2$	

Name: Date: Period:

4. Kiran says, "I took the number 9 and then multiplied it by the cube of 4." Select *all* the expressions that have the same value as Kiran's result.

- ☐ **A.** $9 \cdot 4^3$
- ☐ **B.** $(9 \cdot 4)^3$
- ☐ **C.** $9 \cdot 3^4$
- ☐ **D.** $9^3 \cdot 4$
- ☐ **E.** 36^3
- ☐ **F.** 576

5. Tyler says, "I added 6 and 7 and then squared the result." Select *all* the expressions that have the same value as Tyler's result.

- ☐ **A.** $6^2 + 7^2$
- ☐ **B.** 13^2
- ☐ **C.** $(6 + 7)^2$
- ☐ **D.** $6^2 + 7$
- ☐ **E.** $6 + 7^2$
- ☐ **F.** 85
- ☐ **G.** 169

6. Shawn says, "I added 50 to the fifth power of 3." Select *all* the expressions that have the same value as Shawn's result.

- ☐ **A.** $3 + (2 \cdot 5) + 50$
- ☐ **B.** $3 + 3^5 + 50$
- ☐ **C.** $3^5 \cdot 50$
- ☐ **D.** $3^5 + 50$
- ☐ **E.** 243
- ☐ **F.** 293

7. Lin says the equation $(9 + 3)^2 = 9^2 + 3^2$ is true because the expressions on both sides of the equal sign are equivalent because they both equal 90. Do you agree or disagree? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 6.12

1. Match each equation with its solution.

Equation	Solution
a $5^4 \cdot 5 = 5^x$	..... $\frac{1}{4}$
b $x^3 - 4 = 60$	 6
c $\frac{4^3}{4^x} = 16$	 4
d $\frac{25}{9} = x^2$	..... $\frac{3}{7}$
e $\left(\frac{1}{2}\right)^2 = x$	 2
f $39 - x^2 = 3$	 5
g $2^6 \cdot 2^x = 2^8$	..... $\frac{5}{3}$
h $\frac{9}{49} = x^2$	 1

2. Determine whether each pair of expressions have the same value. Write *yes* or *no*. If they do not have the same value, determine which expression has the greater value.

a 3^4 and 4^3

b $5 \cdot 5^3$ and 25^2

c 9^1 and 1^9

d $\left(\frac{1}{4}\right)^2$ and $\left(\frac{1}{2}\right)^3$

3. Kiran says the equation $10^3 \cdot 10^2 = 10^{10}/10^5$ is true because the expressions on both sides of the equal sign are equivalent. Do you agree or disagree? Explain your thinking.

Name: Date: Period:

4. Which value is the solution to the equation $625 = 5^x$?

A. 3 **B.** 4 **C.** 5 **D.** 6

5. Decide whether each pair of expressions have the same value. Write *yes* or *no*. If they do not have the same value, determine which expression has the greater value.

a $\left(\frac{3}{5}\right)^3$ or $\frac{3}{5^3}$

b $2 \cdot 2^3$ or $4^3 - 6^2$

c $4 \cdot 5^2$ or $4^2 \cdot 5$

d $7^2 - 9$ or $2^5 + 9$

6. Evaluate each expression for the given value of each variable.

a 0.3^x, when x is 3

b $x^2 + 6$, when x is 4

c $2x^2 + 3y$, when x is 5 and y is 6

d $8y + x^2$, when x is 4 and y is 7

7. Clare evaluated the expression $6x^2 - 12$ when x is 2. She says the value of the expression is $1{,}716$. Is Clare correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 6.13

For Problems 1–4, use the following information. A florist uses daisies and gardenias for a wedding. The florist currently has 500 daisies and 200 gardenias.

1. Assuming the ratio of daisies to gardenias is always the same, complete the table.

Daisies, d	Gardenias, g	Total flowers, t
5		
	16	
		140
250		
	200	
		1,225

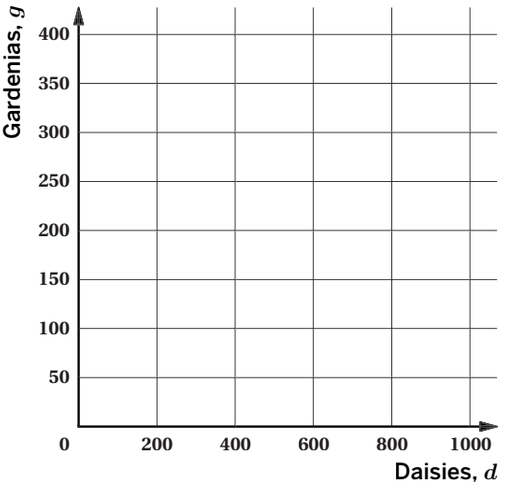
2. Refer to the table.

a Write a fraction that represents the ratio of daisies to the total number of flowers.

b Write an equation that represents the relationship between the number of daisies d as the dependent variable and the total number of flowers t as the independent variable.

c Write an equation that gives the number of daises d if you know the number of gardenias g.

3. Use the points in the table to create a graph that shows the relationship between d and g.



4. Shawn says the equation $g = \frac{5}{2} \cdot d$ will always describe the relationship between d and g, where d is the independent variable. Do you agree or disagree? Explain your thinking.

Name: ..... Date: ..... Period: .....

For Problems 5–8, use the following information. A thrift store is having a 25% off sale.

5. Complete the table to show how much you would pay for items during the sale.

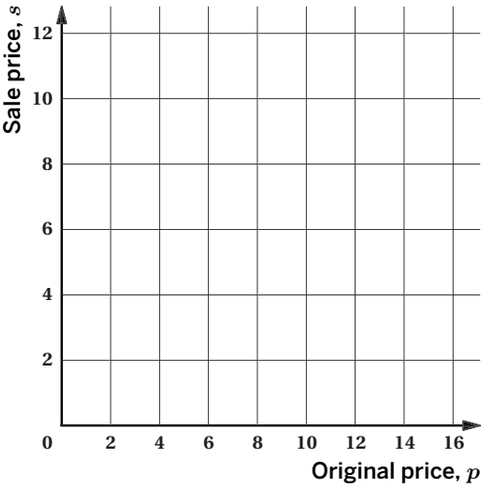
Original price, p ($)	1	2	3	5	8	10	12	15
Sale price, s ($)								

6. Refer to the table.

a What percent of the original price of an item would you pay during the sale?

b Write an equation that relates the sale price s to the original price p.

7. Use the points in the table to create a graph that shows the relationship between p and s.



8. Lin says the variable p is the dependent value because it is used to calculate the value of s. Do you agree or disagree with Lin? Explain your thinking.

Name: Date: Period:

Additional Practice 6.14

Han, Elena, and Clare are training for a bike race, and they bike at a constant speed. Use this information for Problems 1–4.

1. Complete the table with the distances biked for certain amounts of time.

Time (hours), t	Han's distance (miles), h	Elena's distance (miles), e	Clare's distance (miles), c
0.25		2.5	
0.5	6		
2			30
3	36	30	45
4			

2. Refer to the table.

a How fast does each person ride, in miles per hour?

Han: **Elena:** **Clare:**

b How long does it take each person to ride one mile?

Han: **Elena:** **Clare:**

3. Write three equations that represent the distance d traveled, in miles, given the time t, in hours.

Han: **Elena:** **Clare:**

4. For your equations for Problem 3, which is the dependent variable and which is the independent variable? Explain your thinking.

Name: ..... Date: ..... Period: .....

Suppose Bard reads 35 pages in an hour. Use this information for Problems 5–8.

5. Assuming Bard reads at a constant rate, complete the table.

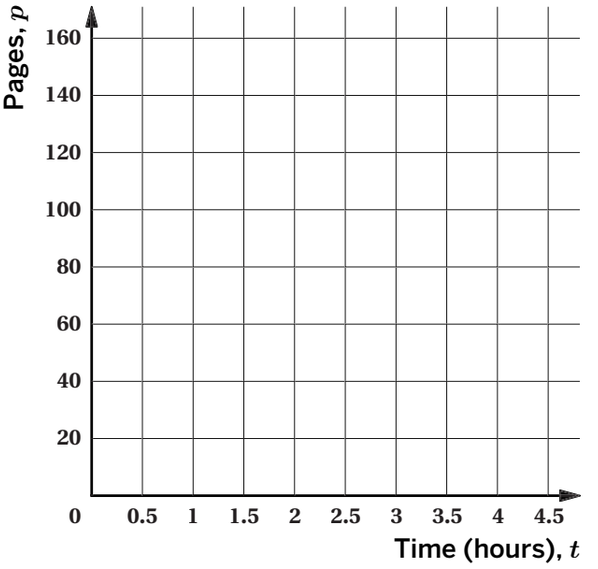
Time (hours), t	2	3.2	t			
Pages, p				140	56	p

6. Refer to the table.

a Write an equation that relates the number of pages read p to the time t, in hours.

b Identify the independent and dependent variables in your equation.

7. Use the points in the table to create a graph that shows the relationship between time t and the number of pages p Bard reads.



8. Write an equation that Bard can use to determine the time t it will take to read 91 pages.

Name: Date: Period:

Additional Practice 6.15

1. Maria is making lemonade for a picnic with friends. The equation $w = l + 6$ represents the relationship between the amount of lemonade concentrate (in cups), l, and water (in cups), w. Which table represents the same relationship?

A.

l	w
8	2
10	4
12	6

B.

l	w
2	8
4	10
6	12

C.

l	w
10	4
8	2
6	0

D.

l	w
6	10
8	8
10	6

Name: Date: Period:

Problems 2–4: Sanjeev is buying limes for $\$0.60$ each.

2. Write an equation that represents how much money Sanjeev spends, m, for buying a number of limes, l.

3. Complete the table that represents this situation.

l	m
6	
7	
	$\$5.40$
	$\$6.60$

4. Explain what $l = 9$ and $m = \$5.40$ means in this situation.

5. Sanjeev spends $\$9.00$ on limes. How many limes did he purchase?

A. 12 limes

B. 13 limes

C. 14 limes

D. 15 limes

Name: ..... Date: ..... Period: .....

Additional Practice 6.16

1. Select *all* the expressions that are equivalent to the expression $3a + 6a$.

- ☐ **A.** $4a + 5a$
- ☐ **B.** $a(3 + 6)$
- ☐ **C.** $6a + 3a$
- ☐ **D.** $a \div \frac{1}{18}$
- ☐ **E.** $9a$
- ☐ **F.** $18a$
- ☐ **G.** $3(a + 6a)$
- ☐ **H.** $a \div \frac{1}{9}$

2. Determine the value of b. Show your thinking.

a 45% of b is 225.

b 300% of b is 12.

c 12% of b is 4.8.

3. Solve each equation. Show your thinking.

a $180 = 15c$

b $3\frac{1}{5} + c = 7$

c $c - 17.34 = 29.2$

d $\frac{9}{8} = 2\frac{1}{2}c$

4. Select *all* the expressions that are equal to $5 \cdot 5 \cdot 5 \cdot 5$.

- ☐ **A.** $5 \cdot 4$
- ☐ **B.** $5^2 \cdot 5^2$
- ☐ **C.** $5^3 + 5$
- ☐ **D.** 4^5
- ☐ **E.** 5^4
- ☐ **F.** $5 \cdot 5^3$

Name: Date: Period:

5. Evaluate each expression. Show your thinking.

a $30 - 3^3$

b $5^3 + 16$

c $12^2 - 8^2$

d $8 \cdot \left(\frac{1}{2}\right)^3$

e $2^4 \cdot 2$

f $4^4 \div 4$

6. Select *all* the expressions that are equivalent to the expression $4(3x - 6)$.

- ☐ **A.** $3(4x - 6)$
- ☐ **B.** $2(6x - 12)$
- ☐ **C.** $8(2x - 3)$
- ☐ **D.** $6(2x - 4)$
- ☐ **E.** $12x - 24$

7. Shawn separately baked 6 batches of pretzels, for a total of 72 minutes. Each batch of pretzels baked for b minutes. Select *all* the equations that represent this situation.

- ☐ **A.** $6 \cdot b = 72$
- ☐ **B.** $b - 6 = 72$
- ☐ **C.** $b = 72 \div 6$
- ☐ **D.** $6 \cdot 72 = b$
- ☐ **E.** $72 = b + 6$

8. Priya says the solution to the equation $\frac{6}{5}x = \frac{1}{3}$ is $\frac{2}{5}$. Is Priya correct? Explain your thinking.

Grade 6 | Unit 7

Additional Practice

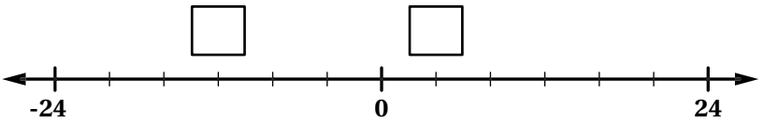
Practice Problems

Name: ..... Date: ..... Period: .....

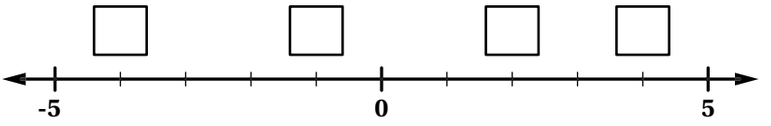
Additional Practice 7.01

Problems 1–4: Fill in the blanks on the number lines.

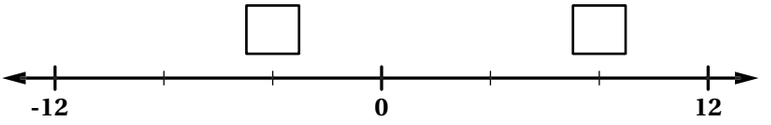
1.



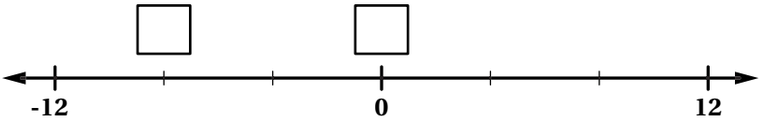
2.



3.

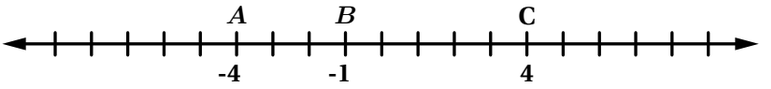


4.



Name: ..... Date: ..... Period: .....

Problems 5–8: Here is a number line.



5. Describe where you would plot 50 on the number line.

6. Point D is 3 units to the left of point A. Plot point D.

7. Point E is at 0. Where is Point E located?

A. To the left of Point A

B. Between Points A and B

C. Between Points B and C

D. To the right of Point C

8. What locations are 2 units away from point B?

A. -3 and 1

B. -4 and 2

C. -5 and -2

D. -6 and -5

Name: ..... Date: ..... Period: .....

Additional Practice 7.02

1. For each number, name its opposite.

a 0

b 11

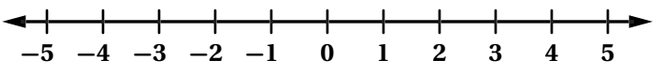
c $-1\frac{1}{3}$

d -3.125

e 9.15

f $\frac{3}{4}$

2. Plot and label each point on the number line.



a Point A is located at the opposite of 0.

b Point B is located at the opposite of 2.5.

c Point C is located at the opposite of -4.

d Point D is located at -1.

e Point E is located at 3.5.

f Point F is located at $-\frac{5}{3}$.

3. Where would the temperature $-3.2°\text{F}$ be located on a thermometer? Select *all* that apply.

☐ **A.** Between 0 and -5

☐ **B.** Between 2 and 4

☐ **C.** Between -3 and -4

☐ **D.** Between 3 and -3

☐ **E.** Between -10 and 0

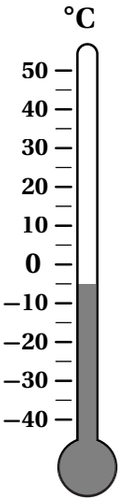
☐ **F.** Between -3 and -3.5

Name: ..... Date: ..... Period: .....

4. Where would the number $-\frac{17}{2}$ be located on a number line? Select *all* that apply.

- ☐ **A.** Between -16 and -18
- ☐ **B.** Between -7 and -10
- ☐ **C.** Between $-\frac{19}{2}$ and $-\frac{15}{2}$
- ☐ **D.** Between -6 and -8
- ☐ **E.** Between -15 and -17
- ☐ **F.** Between $-\frac{33}{4}$ and $-\frac{35}{4}$

5. Refer to the thermometer showing degrees Celsius.



a What is the temperature shown?

b What is the opposite of the temperature shown?

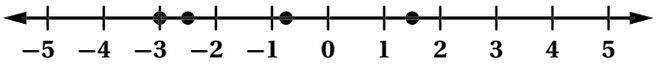
c What would the temperature be if it was $5°$ warmer?

d What would the temperature be if it was $10°$ colder?

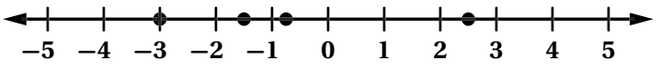
e What would the temperature be if it was $2.5°$ warmer?

6. Bard and Andre each plotted the numbers $-\frac{3}{4}$, $1\frac{1}{2}$, -3, and 2.5 on the number lines shown. Who is correct? Explain your thinking.

Bard



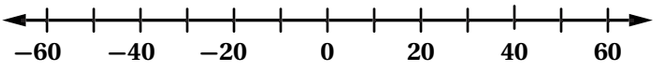
Andre



7. The temperatures in Miami, FL, and Anchorage, AK, are rarely the same.

a One evening, the temperature in Miami was $28°\text{C}$. During that same evening in Anchorage, it was $32°\text{C}$ cooler than it was in Miami. What was the temperature in Anchorage?

b For both cities, plot the temperature and their opposite temperature.



c Clare says the temperature for Miami is closer to 0 than the temperature for Anchorage. Do you agree? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.03

1. Write an integer that represents each elevation.

a The Dead Sea has an elevation of 430 m below sea level.

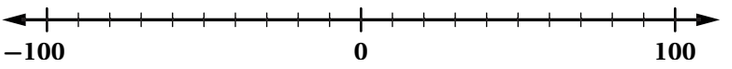
b Santa Fe, New Mexico, has an elevation of $2{,}194$ m above sea level.

c Indio, California, has an elevation of 6 m below sea level.

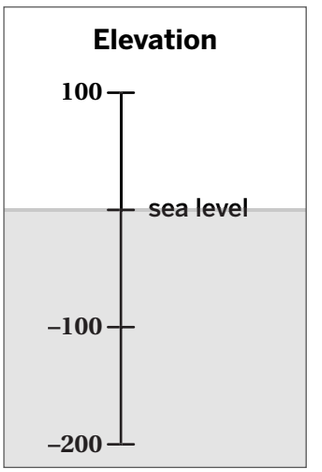
d Lake Eyre, Australia, has an elevation of 16 m below sea level.

e Flagstaff, Arizona, has an elevation of $2{,}106$ m above sea level.

2. Baku, Azerbaijan, has an elevation of 92 ft below sea level. Suva, Fiji, has an elevation at sea level. Havana, Cuba, has an elevation of 13 ft above sea level. Plot and label each location as a point on the number line.



3. The statements in parts a–d describe the movements of a humpback whale in the ocean. Each statement starts from the whale's elevation in the previous statement.



a A humpback whale is at the surface of the ocean to breathe. What is the whale's elevation?

b The whale then dives down 180 ft to feed. What is the whale's elevation now?

c The whale breaches (leaps) 10 ft into the air. What is the whale's elevation now?

d Plot and label the three elevations as points on the vertical number line.

4. Complete these problems about sea level and elevation.

a Which elevation is closer to sea level: -12 m or 15 m?

b Which elevation is closer to sea level: 10 m or -20 m?

c A sea gull dives 12 ft below sea level. Then it swims 9 ft toward the surface. What is its elevation?

d Another sea gull dives 9 ft below sea level. Then it swims down another 16 ft. What is its elevation?

Name: ..... Date: ..... Period: .....

5. Complete the table for each elevation with the correct sign and its relation to sea level.

Elevation	Corresponding sign (+/−/no sign)	Relation to sea level (above/below/at)
−26 m		
0 yd		
15 ft		

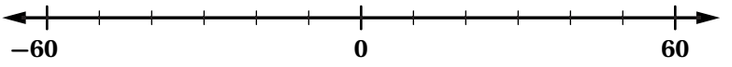
6. These statements describe the movements of a hiker on a trail. Each statement starts from the hiker's elevation in the previous statement.

a A hiker starts the trail at the base of the trail which is at sea level. What is the hiker's elevation?

b The hiker then walks up 24 m to a small summit. What is the hiker's elevation now?

c The hiker then walks down 28 m into Red Canyon. What is the hiker's elevation now?

d Plot and label the three elevations as points on the horizontal number line.



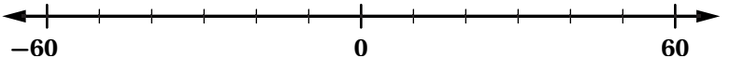
7. Using what you know about positive and negative numbers, complete these problems.

a The temperature was 12°C at nightfall and then dropped 8° by midnight.
What was the temperature at midnight?

b The temperature was −8°C at dawn. By noon, the temperature rose 6°.
What was the temperature at noon?

c The temperature was 24°C at nightfall and then dropped 30° by sunrise.
What was the temperature at sunrise?

d Plot and label the three temperatures as points on the horizontal number line.



8. Clare claims that a city with an elevation of −15 ft is closer to sea level than a city with an elevation of 12 ft. Do you agree with her claim? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.04

1. Here are five numbers: $-\frac{3}{4}, -2, 1, \frac{3}{2}, 2$

Suppose these numbers are plotted on a horizontal number line. Which statement about the locations of the numbers is true?

A. 2 is the farthest to the right, and $-\frac{3}{4}$ is farthest to the left.

B. 2 is the farthest to the right, and -2 is farthest to the left.

C. 1 is the farthest to the right, and $-\frac{3}{4}$ is farthest to the left.

D. $-\frac{3}{4}$ is the farthest to the right, and 2 is farthest to the left.

Problems 2–4: Circle whether each statement is *true* or *false*.

2. -2.7 is to the left of -1.9 on the number line. True False

3. -3.2 is greater than -2.1. True False

4. Choose one statement from the previous two problems and explain your thinking.

5. Use the symbols $>$, $<$, or $=$ to compare each pair of numbers.

a $\frac{3}{4} \square \frac{7}{8}$

b $\frac{1}{4} \square \frac{2}{8}$

c $\frac{6}{10} \square 0.5$

d $0.5 \square \frac{50}{100}$

e $\frac{9}{11} \square \frac{9}{10}$

f $\frac{1}{2} \square \frac{1}{4}$

Name: Date: Period:

6. Use the symbols $>$, $<$, or $=$ to compare each pair of numbers.

a $9.12 \square 9.21$

b $6.4 \square 6.04$

c $17.9 \square 17.90$

d $12.25 \square 12.52$

e $4.0 \square 4.00$

f $5.8 \square 58$

7. Which expressions are solutions to the equation $\frac{5}{6}x = 10$? Select *all* that apply.

☐ **A.** $10 \div \frac{5}{6}$

☐ **B.** $10 \div \frac{6}{5}$

☐ **C.** $\frac{10}{\frac{5}{6}}$

☐ **D.** $\frac{5}{6} \div 10$

☐ **E.** $10 \cdot \frac{5}{6}$

☐ **F.** $\frac{6}{5} \cdot 10$

8. Diego is selling raffle tickets for $\$1.50$ per ticket. Complete the table to show how much money he would earn if he sold each number of tickets.

Number of tickets sold	20	50	r
Amount earned ($)			

9. Movie tickets at a local theater sell for $\$8.25$.

a Complete the table to show how much the theater will earn for selling each number of movie tickets.

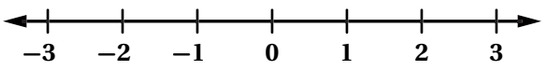
Number of tickets sold	4	22	t
Amount earned ($)			

b Mai says that in order for the theater to earn $\$561$, the theater must sell 60 tickets. Is Mai correct? Explain your reasoning.

Name: ..... Date: ..... Period: .....

Additional Practice 7.05

1. Plot and label *all* the numbers that have an absolute value of $\frac{5}{2}$ on the number line.



2. Order these values from least to greatest.
$|3.4|$, $|-2|$, 0, 2.6, -1

3. The temperature at midnight was $4°\text{C}$ away from $0°\text{C}$. Select *all* the temperatures that could have been the temperature at midnight.

- ☐ **A.** $8°\text{C}$
- ☐ **B.** $4°\text{C}$
- ☐ **C.** $0°\text{C}$
- ☐ **D.** $-4°\text{C}$
- ☐ **E.** $-8°\text{C}$

4. The temperature at sunrise was $8°\text{C}$ away from $0°\text{C}$. List *all* the temperatures that could have been the temperature at sunrise.

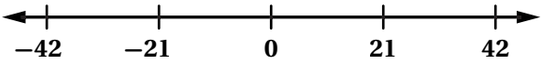
5. Coachella Valley, CA has an elevation of 21 m below sea level.

a Using absolute value, represent the distance of Coachella Valley from sea level.

b Using an integer, represent the elevation of Coachella Valley.

c Using an integer, represent the opposite elevation of Coachella Valley.

d Plot the elevation of Coachella Valley and its absolute value on the number line.



Name: ..... Date: ..... Period: .....

6. Determine the absolute value of each number.

a $\left|-\frac{11}{12}\right|$

b $|-8|$

c $\left|1\frac{3}{4}\right|$

d $|3.9|$

7. Andre has three cats: Sparkles, Ember, and Ash. All three cats had the same weight at the beginning of the year. The table shows their change in weight by the end of the year.

	Change in weight (lb)
Sparkles	$2\frac{1}{2}$
Ember	$-\frac{1}{4}$
Ash	$-2\frac{1}{4}$

a Order the cats from least to greatest absolute value of change in weight.

b Who had the greatest change in weight during the year? Explain your thinking.

8. Shawn claims that the expressions 3.8 and $|-3.8|$ do not have the same value because $|-3.8|$ includes a negative symbol and an absolute value symbol. Do you agree with Shawn? Explain your thinking.

Name: Date: Period:

Additional Practice 7.06

Problems 1–4: This table shows the bank account transactions for a donut shop.

Date	Item	Amount
June 19	Customer Orders	$986.39
June 19	Supplies – Flour	−$361.40
June 22	Customer Orders	$762.13
June 25	Supplies – Sprinkles	−121.76
June 25	Customer Orders	$361.40

1. What does the number –121.76 represent in this context?

2. Choose the correct description on the bank account transactions on June 19.

A. The donut shop received more money than it spent.

B. The donut shop spent more money than it received.

C. The donut shop spent and received an even amount of money.

D. More information is needed.

3. Select the two transactions that are the same distance from $0.

4. How much money did the donut shop make on June 25?

Name: Date: Period:

Problems 5–6. Clare thinks the temperatures on a certain day are very cold. She tracks the temperature every 3 hours. The table shows her recordings.

Time	Temperature (°Celsius)
12 PM	6
3 PM	3
6 PM	0
9 PM	−3

5. At what two times was the temperature the same distance from freezing?

A. 12 PM and 3 PM

B. 3 PM and 6 PM

C. 3 PM and 9 PM

D. 12 PM and 9 PM

6. How many degrees warmer was it at 12 PM compared to 9 PM? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.07

1. At a restaurant, a minimum of 2 people in each party need to be present in order to be seated at their table. Write an inequality that represents the possible number of people p that need to be present in order to be seated.

2. Clare is younger than Bard. Bard is 13 years old. Write an inequality that compares Clare's age in years c to Bard's age.

3. Diego started cooking dinner before 5:00 p.m. and finished cooking dinner at 6:00 p.m. Let d represent the number of hours Diego spent cooking dinner. Determine whether each statement is *definitely true*, *definitely not true*, or *possibly true*.

a $d < 1$

b $d > 1$

c $d < 2$

d $d > 2$

e $d < 0.5$

f $d > 0.5$

4. Noah started a run at 6:30 a.m. and finished sometime after 9:00 a.m. Let r represent the number of hours Noah spent running. Determine whether each statement is *definitely true*, *definitely not true*, or *possibly true*.

a $r > 2$

b $r > 2.5$

c $r > 3$

d $r < 3$

e $r < 2.5$

f $r < 2$

Name: Date: Period:

5. At the grocery store, all apples cost less than $\$2.00$ per pound.

a What is the most expensive price one pound of apples could cost?

b Write an inequality to represent the possible costs, in dollars, for any number of pounds of apples.

6. At the clothing store, all t-shirts cost more than $\$9.99$.

a What is the least expensive price a t-shirt could be?

b Write an inequality to represent the possible costs of t-shirts, in dollars.

7. Priya looks at a container of cherries and says, "I think there are more than 55 cherries in the container."
Jada looks at the same container of cherries and says, "I think there are less than 125 cherries in the container."

a Write an inequality to show Priya's statement, using c to represent the number of cherries.

b Write another inequality to show Jada's statement, also using c to represent the number of cherries.

c Can Priya and Jada both be correct? Explain your thinking and provide a possible number of cherries that supports your argument.

8. Priya and Jada are each analyzing a container of blueberries. Study their statements. Did Priya and Jada each represent their statements with correct inequalities? Explain your thinking.

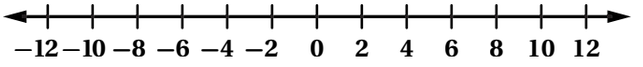
Priya	**Jada**
I think there are less than 150 blueberries in the container. The inequality that represents this is $b > 150$, where b represents the number of blueberries.	I think there are more than 65 blueberries in the container. The inequality that represents this is $b < 65$, where b represents the number of blueberries.

Name: ..... Date: ..... Period: .....

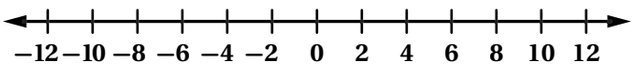
Additional Practice 7.08

1. Graph each inequality statement on the number line.

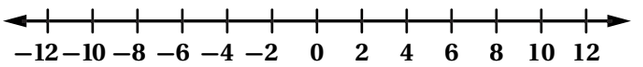
a $a \geq 10$



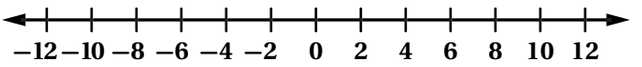
b $b < -4$



c $c > 6$

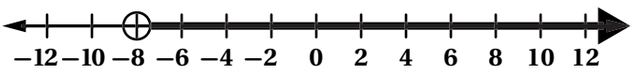


d $d \leq 0$

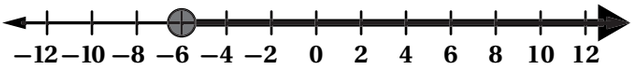


2. Use the variable x to write an inequality statement that represents each graph.

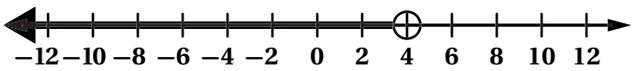
a



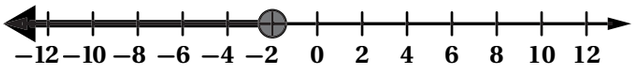
b



c



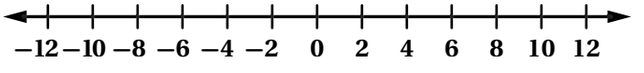
d



3. Consider the inequality $m < 4$.

a Which of these numbers are solutions to the inequality: $4, -3.1, -1, 4.6, 1.5, -8, 5$? List *all* that apply.

b Graph the inequality statement on the number line.

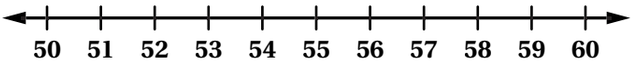


Name: ..... Date: ..... Period: .....

4. A sign at an amusement park reads, "You must be 54 in. or taller to ride."

a Using the variable h, write an inequality that represents the information on the sign.

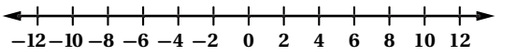
b Graph the inequality statement on the number line.



5. There are less than 12 people in line to ride the roller coaster.

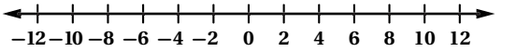
a Using the variable n, write an inequality that represents the number of people in line to ride the roller coaster.

b Graph the inequality statement on the number line.

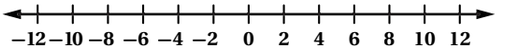


6. Represent each inequality scenario on the number line.

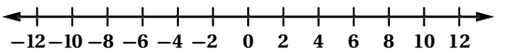
a The amusement park sells at least 10 flavors of ice cream.



b Andre spends less than $\$6$ at the arcade.



c It costs more than 4 tokens for the ride.



7. Andre counts more than 3 hot dog stands at the fair. He said, "To graph this scenario on a number line, I would draw a closed circle at 3 with an arrow pointing to the right." Did Andre correctly describe how to graph this scenario? Explain your thinking.

8. Priya and Jada each wrote a statement to describe a container of blueberries. Did Priya and Jada each correctly describe how to graph their inequality statements? Explain your thinking.

Priya

I think there are less than 150 blueberries in the container. To graph this inequality statement, I would draw an open circle at 150 with an arrow pointing to the right.

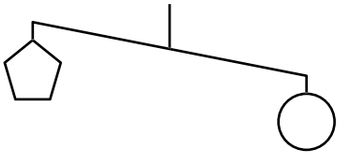
Jada

I think there are more than 65 blueberries in the container. To graph this inequality statement, I would draw a closed circle at 65 with an arrow pointing to the right.

Name: ..... Date: ..... Period: .....

Additional Practice 7.09

1. Here is a diagram of an unbalanced hanger.

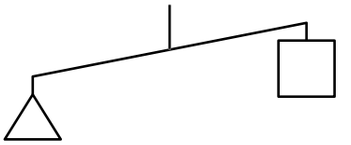


a Write an inequality to represent the relationship between the two weights. Use p to represent the weight, in grams, of the pentagon, and use c to represent the weight, in grams, of the circle.

b One pentagon weighs 110 g. Write an inequality to represent the weight of one circle.

c Could 65 be the value of c? Explain your thinking.

2. Here is a diagram of an unbalanced hanger.



a Write an inequality to represent the relationship between the two weights. Use t to represent the weight, in grams, of the triangle, and use s to represent the weight, in grams, of the square.

b One triangle weighs 18 g. Write an inequality to represent the weight of one square.

c Could 9 be the value of s? Explain your thinking.

3. Clare has more than $\$25$. Priya has less money than Clare. Elena has less money than Priya. Let c be the amount of money that Clare has, p be the amount of money that Priya has, and e be the amount of money that Elena has. Select *all* the statements that must be true.

- ☐ **A.** $e > 25$
- ☐ **B.** $e < c$
- ☐ **C.** $p < 25$
- ☐ **D.** $p > c$
- ☐ **E.** $25 < c$
- ☐ **F.** $p > e$

4. Kiran has more than $\$25$. Andre has more money than Kiran. Shawn has more money than Andre. Let k be the amount of money Kiran has, a be the amount of money Andre has, and s be the amount of money Shawn has. Select *all* the statements that must be true.

- ☐ **A.** $s > 25$
- ☐ **B.** $s > k$
- ☐ **C.** $a > s$
- ☐ **D.** $a < k$
- ☐ **E.** $25 < k$
- ☐ **F.** $a < 25$

Name: Date: Period:

5. There is a closed box containing yogurts in Mai's refrigerator. The box contains y yogurts, and it can hold 10 yogurts.

a Write an inequality that represents less than 10 yogurts in the box.

b Write an inequality that represents more than zero yogurts in the box.

c What are three possible realistic values of the two inequalities?

6. A roller coaster for young children has the following restrictions on height h, in inches: $h > 30$ and $h < 42$. Select *all* the heights of children that would be able to ride the roller coaster.

- ☐ **A.** 30 in.
- ☐ **B.** 30.5 in.
- ☐ **C.** 38 in.
- ☐ **D.** 41.5 in.
- ☐ **E.** 42 in.
- ☐ **F.** 44 in.

7. One day in Phoenix, AZ, the high and low temperatures in degrees Fahrenheit, t, were represented by the inequalities $t > 68$ and $t < 94$. Select *all* the temperatures that could have been the temperatures that day in Phoenix.

- ☐ **A.** $98°\text{F}$
- ☐ **B.** $72°\text{F}$
- ☐ **C.** $85°\text{F}$
- ☐ **D.** $94°\text{F}$
- ☐ **E.** $91°\text{F}$
- ☐ **F.** $65°\text{F}$

8. At the grocery store, all apples cost more than $\$0.89$ per pound and less than $\$2.00$ per pound.

a List 5 possible realistic prices for the apples, per pound.

b Noah writes the inequality $c \geq \$0.89$ to represent the least cost of the apples, per pound. Did Noah correctly write this inequality? Explain your thinking.

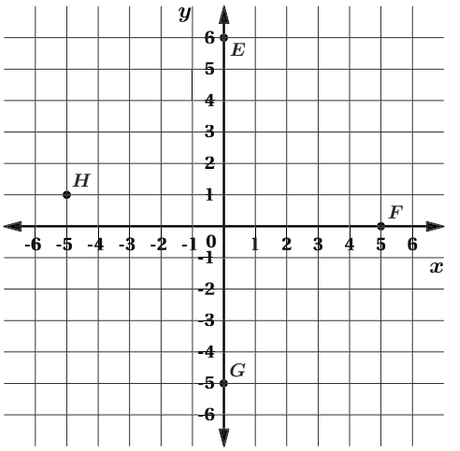
c Noah writes the inequality $c < \$2.00$ to represent the greatest cost of the apples, per pound. Did Noah correctly write this inequality? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.10

Refer to the coordinate plane for Problems 1 and 2.

1. Plot and label the following four points:
$A(1, 1), B(-4, 1), C(-1, -1), D(1, -4)$.



2. Write the coordinates for each point.

a Point E

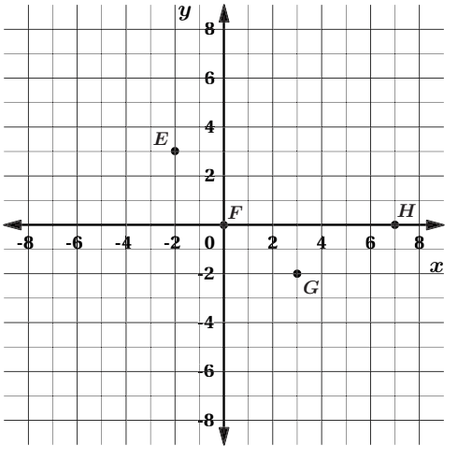
b Point F

c Point G

d Point H

Refer to the coordinate plane for Problems 3 and 4.

3. Plot and label the following four points:
$A(0, 7), B(-7, 0), C(-4, -3), D(4, 3)$.



4. Write the coordinates for each point.

a Point E

b Point F

c Point G

d Point H

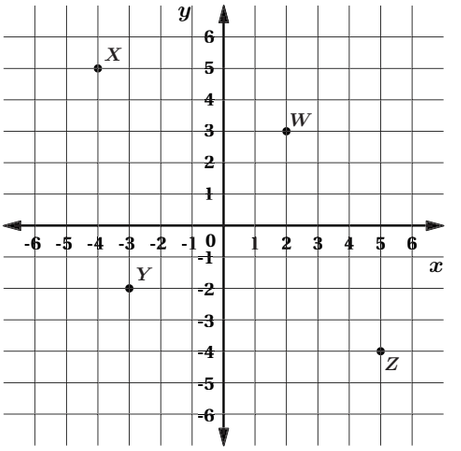
Name: ..... Date: ..... Period: .....

5. When these three ordered pairs are plotted, the points fall on the same line: $(-3, -3)$, $(-3, 0)$, $(-3, 1)$.

a Is the line vertical or horizontal? Explain your thinking.

b Write the ordered pairs for two other points that also lie on this same line.

6. Refer to the coordinate plane.



a Complete the table to show the coordinates and quadrant for each point.

Point	Coordinates	Quadrant
W		
X		
Y		
Z		

b Point V is located at $(0, 5)$. On what axis does point V lie on?

c For all of the points in quadrant III, are both coordinates *positive* or *negative*?

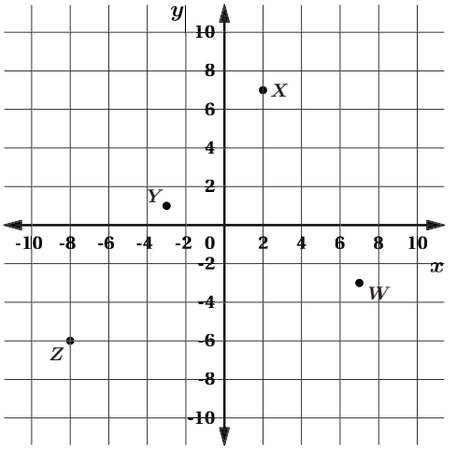
7. Priya says that if both coordinates of a point are positive, the point can be located in either quadrant I or quadrant II. Is Priya correct? Explain your thinking.

8. Priya says that if both coordinates of a point are negative, the point can be located in either quadrant III or quadrant IV. Is Priya correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.11

1. Refer to the coordinate plane.

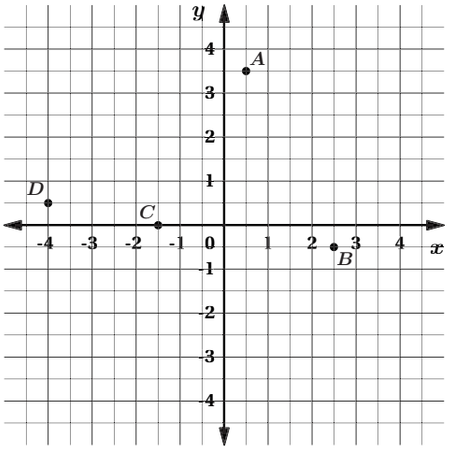


a What is the scale for this coordinate plane?

b Write the coordinates of each point.

Point	Coordinates
W	
X	
Y	
Z	

2. Refer to the coordinate plane.

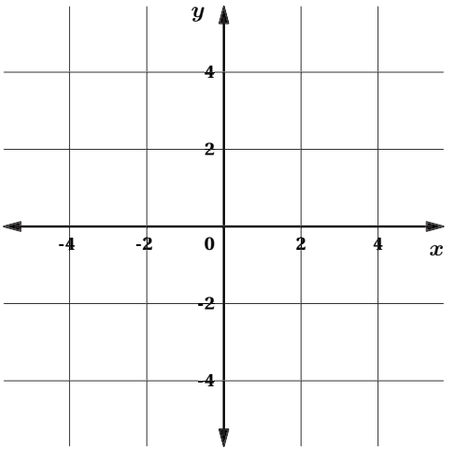


a What is the scale for this coordinate plane?

b Write the coordinates of each point.

Point	Coordinates
A	
B	
C	
D	

3. Refer to the coordinate plane.

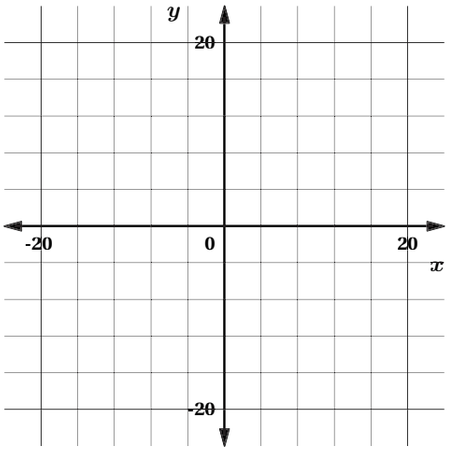


a Name four points with integer coordinates that would form a square with the origin at its center.

b Plot these points on the coordinate plane to verify that they form a square.

Name: ..... Date: ..... Period: .....

4. Refer to the coordinate plane.

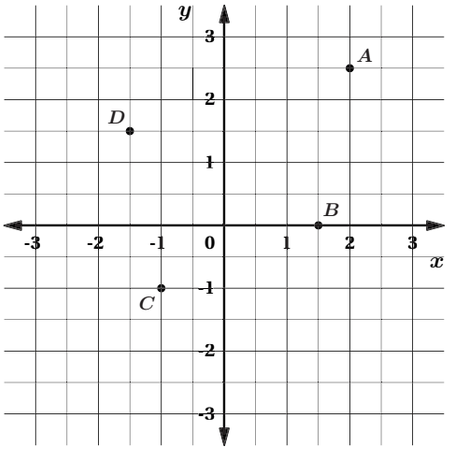


a What is the scale for this coordinate plane?

b Plot and label points $A(6, -4)$, $B(-12, 10)$ and $C(0, 2)$ on the coordinate plane.

Refer to the coordinate plane for Problems 5 and 6.

5. Shawn plotted four points and recorded the coordinates as: $A(2.5, 2.5)$, $B(0, 1.5)$, $C(-1, -1)$, $D(-2, -2)$.



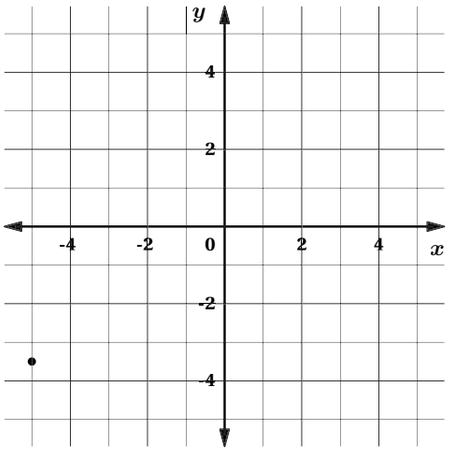
Some of the coordinates Shawn wrote are incorrect. For each point, state whether Shawn's ordered pairs are *correct* or *incorrect*. For any incorrect pair, explain what Shawn's mistake might have been.

a Point A

b Point B

c Point C

d Point D



6. Plot and label the points $E(0, 1.5)$ and $F(0, -0.5)$ on the coordinate plane.

7. Refer to the point plotted on the coordinate plane. Bard says the point is located at $(-5, -4.5)$. Is Bard correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.12

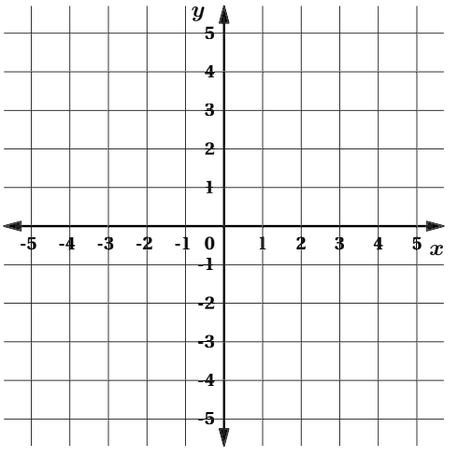
1. The vertices of a rectangle are located at $(-2, 2)$, $(-2, -4)$, $(2, -4)$, and $(2, 2)$.

a What is the length and width of the rectangle?

b What is the perimeter of the rectangle?

c What is the area of the rectangle?

2. Refer to the coordinate plane.



a Draw a square with a perimeter of 24 units and one vertex located at the point $(4, 4)$.

b Write the coordinates of the other vertices.

c What is the area of the square?

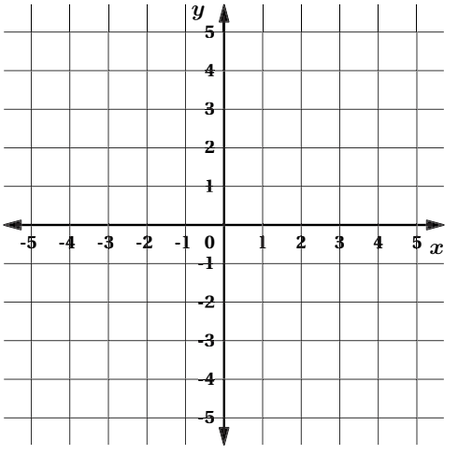
3. The vertices of a rectangle are located at $(-3, 2)$, $(3, 2)$, $(-3, -5)$, and $(3, -5)$.

a What is the length and width of the rectangle?

b What is the perimeter of the rectangle?

c What is the area of the rectangle?

4. Refer to the coordinate plane.



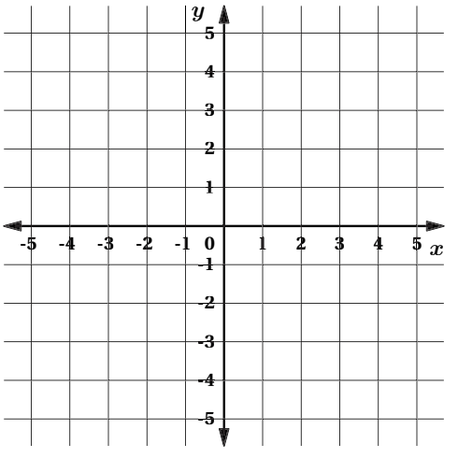
a Draw a square with a perimeter of 20 units and one vertex located at the point $(-1, 1)$.

b Write the coordinates of the other vertices.

c What is the area of the square?

Name: ..... Date: ..... Period: .....

Use this coordinate plane for Problems 5 and 6.



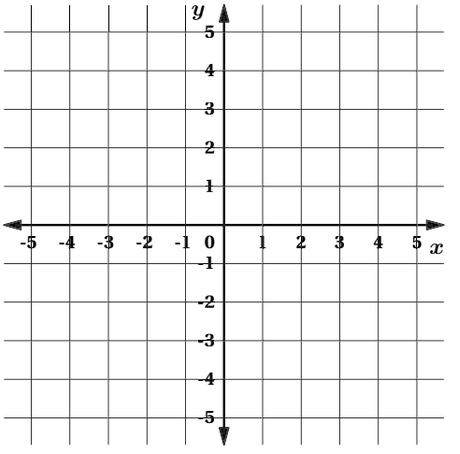
5. Plot and connect the following points in the order they are listed to form a polygon: $(3, 3)$, $(3, -4)$, $(-4, -4)$, $(-4, 1)$, $(1, 1)$, $(1, 3)$.

6. The line segments formed a polygon.

a What is the perimeter of the polygon?

b What is the area of the polygon?

Use this coordinate plane for Problems 7 and 8.



7. Plot and connect these points in the order they are listed to form the two polygons described. Label the polygons A and B.

Polygon A: $(-5, 5)$, $(-4, 5)$, $(-4, -1)$, $(1, -1)$, $(1, -4)$, $(-5, -4)$

Polygon B: $(-3, 5)$, $(-3, 4)$, $(2, 4)$, $(2, -4)$, $(5, -4)$, $(5, 5)$

8. Jada claims that Polygon A and Polygon B has the same perimeter. Is she correct? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 7.13

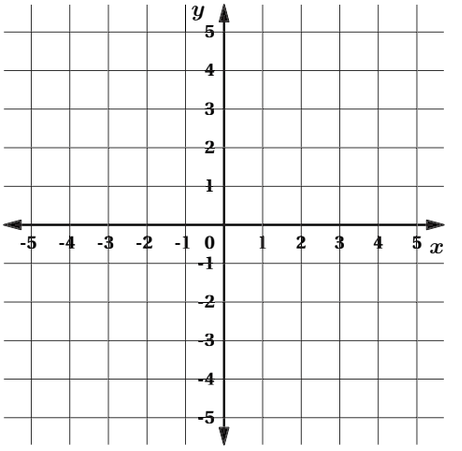
1. Each pair of points is connected to form a line segment in the coordinate plane. What is the length of each line segment, in units?

a $A(-2, -1)$ and $B(-2, -4)$

b $C(1, -2)$ and $D(1, 5)$

c $E(-2, 2)$ and $F(3, 2)$

2. Refer to the coordinate plane.



a Plot and label four points on the coordinate plane that are each located at a distance of 3 units from point P, which is located at $(-1, 2)$.

b Write the coordinates of each of the four points.

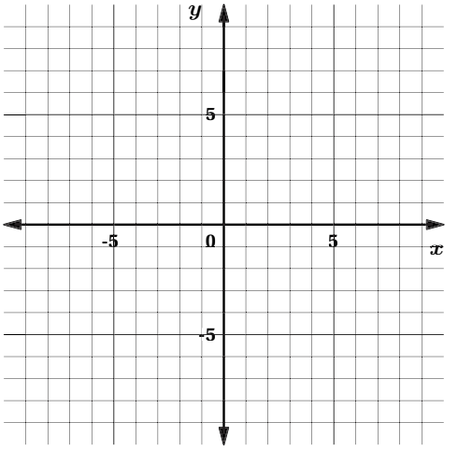
3. Each pair of points is connected to form a line segment in the coordinate plane. What is the length of each line segment, in units?

a $A(-4, -7)$ and $B(-4, 3.5)$

b $C(-1, 0)$ and $D(3, 0)$

c $E(5.5, -5.5)$ and $F(5.5, 1.5)$

4. Refer to the coordinate plane.

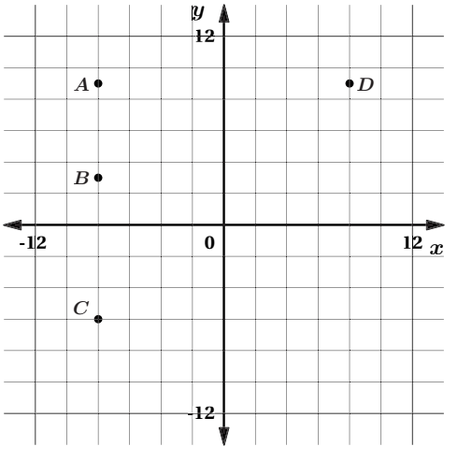


a Plot and label four points on the coordinate plane that are each located at a distance of 5 units from point P, which is located at $(4, 1)$.

b Write the coordinates of each of the four points

Name: ..... Date: ..... Period: .....

5. Points A, B, C, and D have been plotted and labeled on the coordinate plane.



a What is the distance between points A and B?

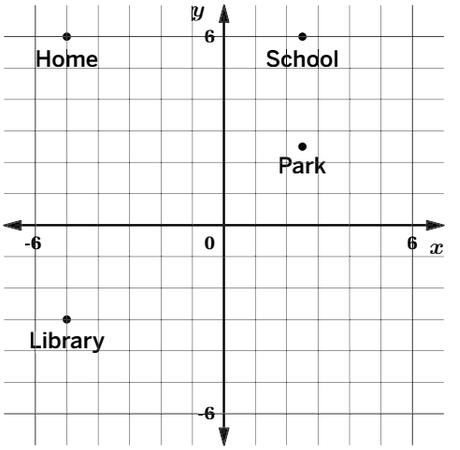
b What is the distance between points A and D?

c What is the distance between points B and C?

d Plot the point $(8, -6)$. Label it E.

e Which point, located in a different quadrant, could be the result of reflecting point E across an axis?

For Problems 6–8, refer to the coordinate plane, which represents Diego's neighborhood.



6. For each path described, determine the number of blocks Diego walks around his neighborhood.

a Diego walks from the library to his home.

b Diego walks from home to school.

c Diego walks from school to the park.

d How many blocks did Diego walk all together?

7. A grocery store is located in quadrant IV. One of the coordinates of this point is the opposite of one of the coordinates of the point representing the school. What are the coordinates of the grocery store?

8. A post office is located in quadrant II. One of the coordinates of this point is the opposite of one of the coordinates of the point representing the library. Priya claims that this point is located at $(5, -3)$. Is Priya correct? Explain your thinking.

Grade 6 | Unit 8

Additional Practice

Practice Problems

Name: ..... Date: ..... Period: .....

Additional Practice 8.01

1. Maria asked her classmates, "What is your favorite hobby?" What type of data would this question produce? Explain your thinking.

Problems 2–3. Liam claims that it takes students, on average, 26 minutes for students to each lunch.

2. Write a question that Lan could ask each student to investigate the claim.

3. What type of data would this question produce?

A. Categorical data

B. Numerical data

C. Neither

Explain your thinking.

4. Determine whether each question would produce numerical or categorical data.

Question	Numerical Data	Categorical Data
How many minutes did it take you to work on your homework?		
What is your favorite class subject?		
What types of foods did you eat for lunch?		
What is the weight of your backpack?		

Name: ..... Date: ..... Period: .....

Problems 5–7. A bakery has a busy Saturday morning with orders. Here is a copy of the transactions by category from that morning.

Customer Orders	Customer Bill
15 x Croissants	$65.00
10 x Coffee	$11.25
20 x Donuts	$40.00
11 x Tea	$22.00
11 x Scones	$38.50

5. What is an example of categorical data from the bakery's transactions?

6. Choose the numerical data from the bakery's transactions. Select *all* that apply.

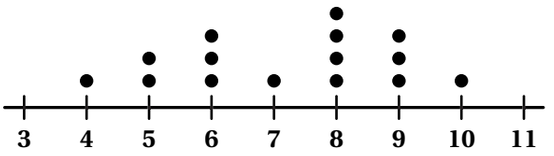
- ☐ **A.** $38.50
- ☐ **B.** Coffee
- ☐ **C.** $65.00
- ☐ **D.** Croissants
- ☐ **E.** $22.00

7. What question could the bakery manager answer using information from these transactions?

Name: ..... Date: ..... Period: .....

Additional Practice 8.02

Use this dot plot for Problems 1–2.



Number of hours slept

1. Shawn surveyed several students to determine the number of hours students slept the previous night.

a How many students did Shawn survey?

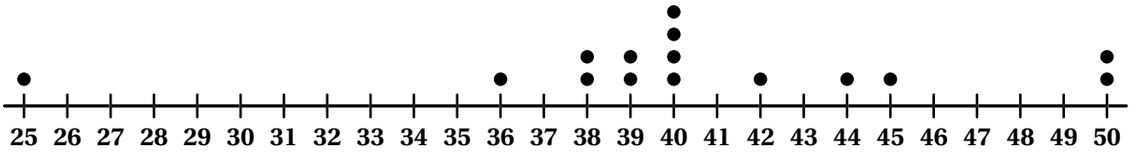
b What was the typical number of hours students slept?

c What percent of the students slept less than 6 hours?

d What percent of the students slept 7 or more hours?

2. Shawn slept for 10 hours last night. Shawn claims to have slept about the typical amount as all the other students surveyed. Do you agree with Shawn? Explain your thinking.

3. A group of students was asked, "How many songs are on your favorite playlist?" The results are shown on this dot plot. Select *all* the statements that are true.

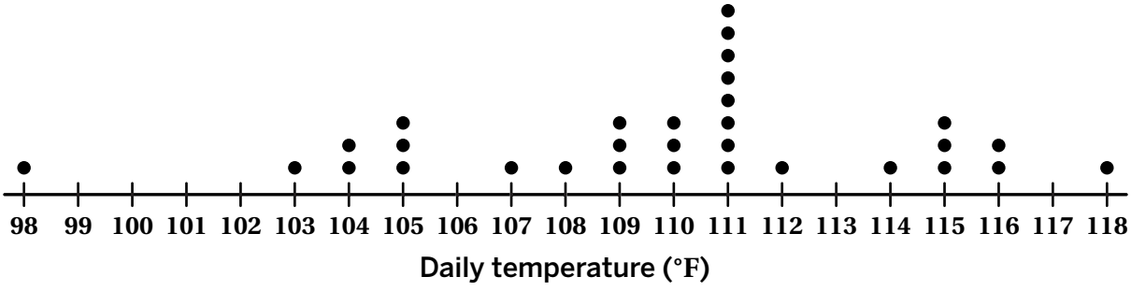


Number of songs in playlist

- ☐ **A.** 9 students were asked about the number of songs on their playlist.
- ☐ **B.** The most occurring number of songs on the playlist is 40.
- ☐ **C.** Typically, there are between 42 and 50 songs on a playlist.
- ☐ **D.** One-third of students had more than 40 songs on their playlist.
- ☐ **E.** More than half of the students had between 38 and 40 songs on their playlist.

Name: ..... Date: ..... Period: .....

This dot plot shows the daily high temperatures in Phoenix, AZ, in July. Use this dot plot for Problems 4–5.



4. Refer to the dot plot.

a What was the lowest daily temperature?

b Which temperature occurred most often?

c How many days had a temperature less than $110°$?

d What fraction of days had temperatures of $114°$ or higher?

e What was a typical temperature in July?

5. The temperature on June 30, was $100°\text{F}$. How does the temperature on June 30 compare to the temperatures in July? Select *all* that apply.

- ☐ **A.** The temperature on June 30 was much higher than the typical temperature in July.
- ☐ **B.** The temperature on June 30 was within the range of temperatures in July.
- ☐ **C.** The typical temperature in July was much higher than the temperature on June 30.
- ☐ **D.** The minimum temperature in July was higher than the temperature on June 30.
- ☐ **E.** There are thirteen days in July that had a higher temperature than June 30.

6. Here are descriptions of data sets. Select *all* the descriptions that could be displayed as dot plots.

- ☐ **A.** Shoe size of each student in a sixth grade class.
- ☐ **B.** Eye color of a group of students in the cafeteria.
- ☐ **C.** How students get to school each day.
- ☐ **D.** Number of soccer goals a team scored at each game during their season.
- ☐ **E.** A month of overnight low temperatures for a city in Florida.

7. Clare said the results to the question, "What is the height of all the students in third grade?" cannot be displayed on a dot plot because most of the students in the class are the same height. Do you agree with Clare? Explain your thinking.

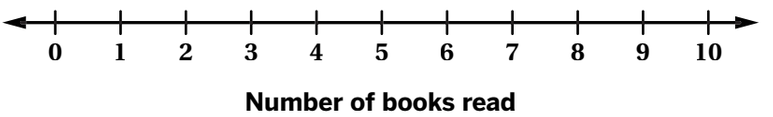
Name: ..... Date: ..... Period: .....

Additional Practice 8.03

Problems 1–3. Here is the number of books read by students in an English class over the summer.

Number of Books Read			
6	4	2	2
0	3	1	7
5	4	6	4

1. Make a dot plot of this data.



Number of books read

2. How many students in English class read at least 6 books over the summer?

A. 1 student

B. 2 students

C. 3 students

D. 4 students

3. Did 3 students read four books over the summer? Circle one.

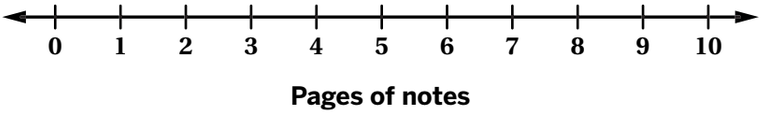
Yes No Maybe

Name: ..... Date: ..... Period: .....

Problems 4–6. Anna recorded how many pages of notes her classmates took during a science class lecture.

Pages of Notes			
0	3	3	2
1	5	4	4
2	2	0	6
3	3	3	8

4. Make a dot plot of this data.



Pages of notes

5. How many students took at least 4 pages of notes during class?

A. 5 students

B. 4 students

C. 3 students

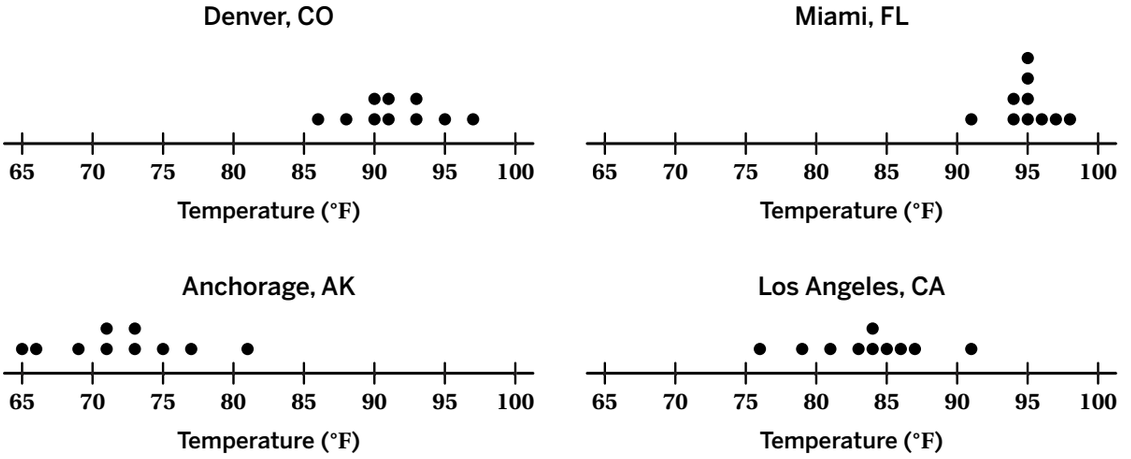
D. 2 students

6. How many students took 3, 4, or 5 pages of notes during class? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 8.04

These dot plots represent the daily high temperatures in degrees Fahrenheit for four different cities in July. Use the data for Problems 1–4.



1. State whether you *agree* or *disagree* with each of the following statements about the temperatures for the different cities. Explain your thinking.

a Miami has the highest average temperature.

b Los Angeles has the greatest spread of temperatures.

c 65 degrees is a good description of the center of the data for Anchorage.

d 97 degrees is a good description of the center of the data for Denver.

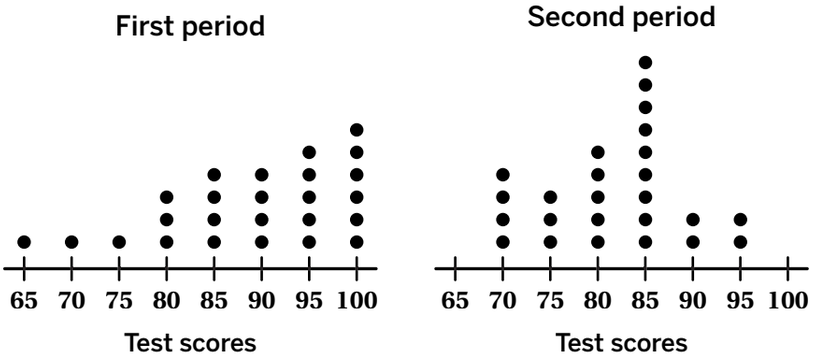
2. List the cities in order of typical daily high temperatures from lowest to highest.

3. Which city has the least spread in daily high temperatures? The most?

4. Mai said, "The daily high temperatures are the closest in Anchorage." Do you agree with Mai? Explain your thinking.

Name: ..... Date: ..... Period: .....

The dot plots show the exam scores of several students in two different periods of a social studies class. Use this data for Problems 5–8.



5. Use the dot plots to complete these problems.

a Which class has a higher typical score? Explain your thinking.

b Which class had the least spread in scores? Explain your thinking.

6. Noah says that 80 is a good description of the center of the data set for first period. Do you agree with Noah? Explain your thinking.

7. Compare the dot plots. Select *all* the true statements.

- ☐ **A.** The lowest score in second period is 65.
- ☐ **B.** In first period, the highest score is 100 and the lowest score is 70.
- ☐ **C.** The spread of scores for first period has greater variability than the scores for second period.
- ☐ **D.** The typical score in second period is 85.
- ☐ **E.** Neither class periods have any gaps in the test scores.
- ☐ **F.** The scores in first period are more similar than the scores in second period.

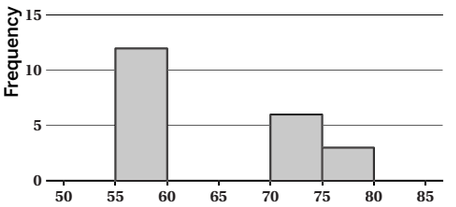
8. In which class did more students score an 80 or higher? Explain how you know.

Name: ..... Date: ..... Period: .....

Additional Practice 8.05

1. Match each histogram with a dot plot that represents the same data set.

a



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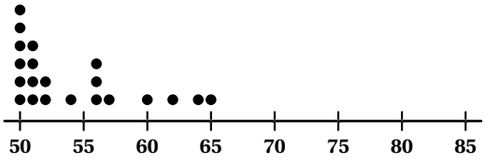
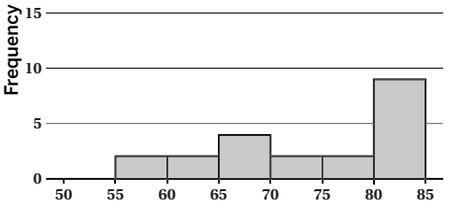


b



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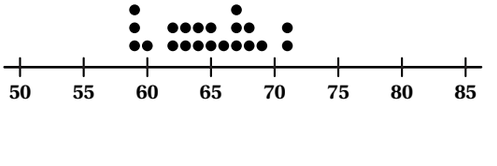
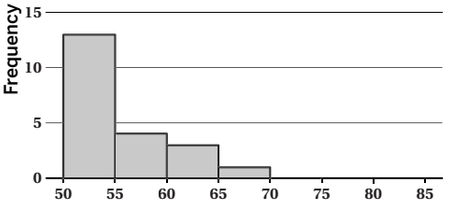


c



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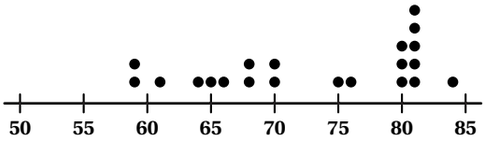
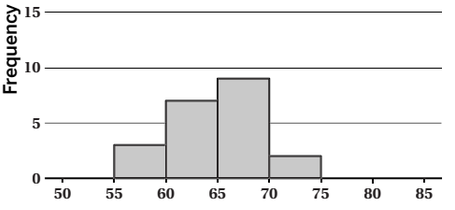
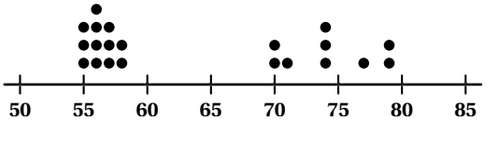


d

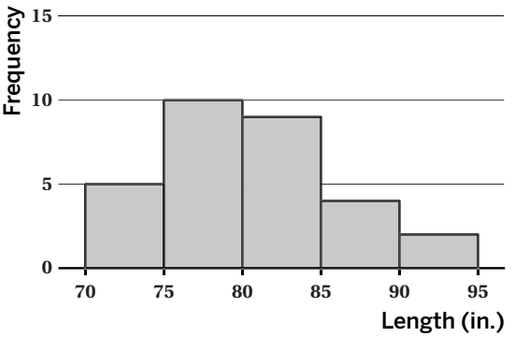


.....



2. The histogram summarizes the lengths, in inches, of a group of West Atlantic bluefin tuna. Select *all* the statements that are true about the histogram.

- ☐ **A.** The majority of tuna were between 75 and 85 in. long.
- ☐ **B.** The longest tuna was over 8 ft long.
- ☐ **C.** 10 tuna were 75 in. long.
- ☐ **D.** A total of 30 tuna were measured.
- ☐ **E.** A total of 5 tuna were measured.
- ☐ **F.** Five tuna were less than 75 in. long.



Name: Date: Period:

This table shows the age of players, in years, on a professional basketball team. Use this information for Problems 3–4.

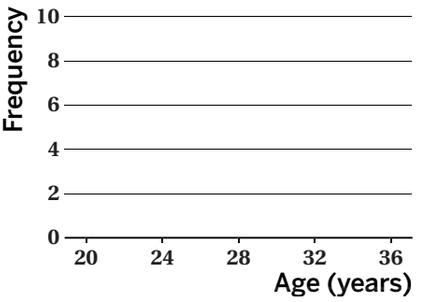
22	22	24	24	25	30	30	29
25	27	32	27	35	26	26	21

3. Complete the frequency table and use it to make a histogram of the ages of the players.

a

Age (years)	Frequency
20 to less than 24	
24 to less than 28	
28 to less than 32	
32 to less than 36	

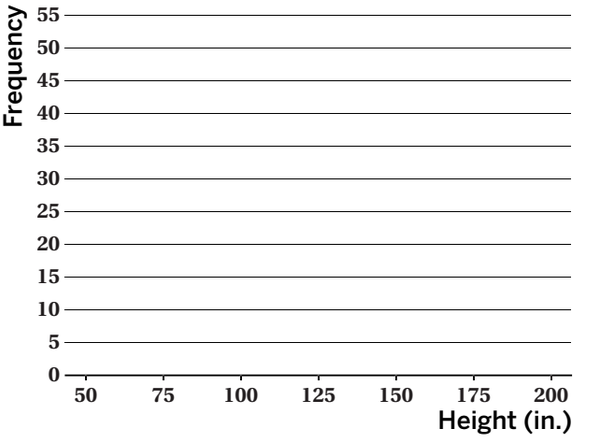
b



4. What is a typical age of a player on the team? Explain your thinking.

5. The frequency table shows the heights of peach trees, in inches, on an acre of land. Use the frequency table to make a histogram of the heights of the peach trees.

Height (in.)	Frequency
50 to less than 75	40
75 to less than 100	50
100 to less than 125	20
125 to less than 150	14
150 to less than 175	10
155 to less than 200	7



6. Refer to the histogram from Problem 5. An average peach tree is between 144 and 180 in. tall. Bard says that there are 24 peach trees between these heights. Is Bard correct? Explain your thinking.

Name: Date: Period:

Additional Practice 8.06

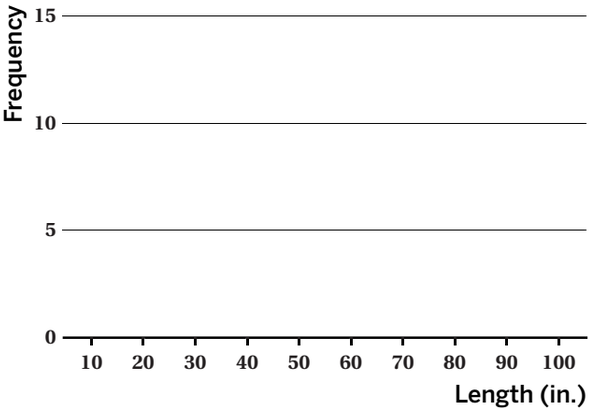
1. Here are the lengths, in inches, of 30 western diamondback rattlesnakes.

92	36	42	60	58	50	46	48	40	62	42	54	65	48	15
48	60	42	51	54	40	38	48	52	78	40	48	80	49	62

a Complete the frequency table for the lengths of the western diamondback rattlesnakes.

b Then use the frequency table to complete the histogram.

Length (in.)	Frequency
10 to less than 20	
20 to less than 30	
30 to less than 40	
40 to less than 50	
50 to less than 60	
60 to less than 70	
70 to less than 80	
80 to less than 90	
90 to less than 100	



2. Based on your histogram from Problem 1, which best describes a typical length for a western diamondback rattlesnake?

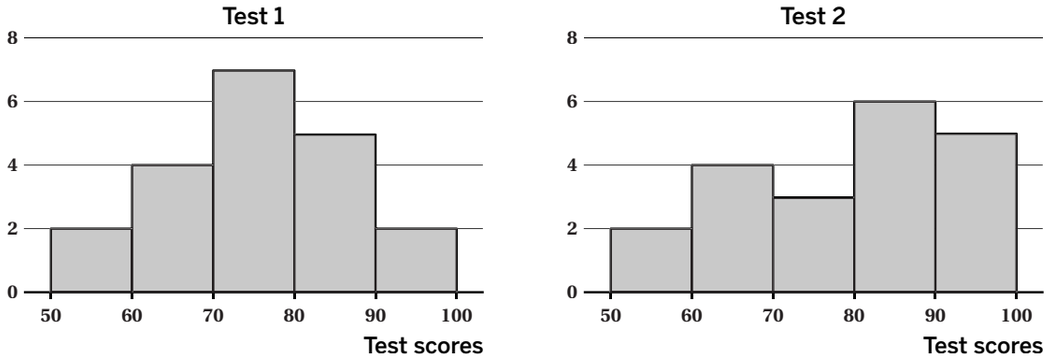
- ☐ **A.** between 10 and 100 in.
- ☐ **B.** between 10 and 40 in.
- ☐ **C.** between 40 and 70 in.
- ☐ **D.** between 70 and 100 in.

3. Based on your histogram from Problem 1 and your description on a typical length in Problem 2, describe the distribution of the data. Select *all* that apply.

- ☐ **A.** The snakes differed in length as much as 89 in.
- ☐ **B.** Most snakes are typically close to 50 in. long.
- ☐ **C.** Most snakes are more than 40 in. long
- ☐ **D.** The shortest snake was 10 in. and the longest snake was 99 in.
- ☐ **E.** There's 77-in. difference between the longest and shortest snake.
- ☐ **F.** No snakes measured between 20 and 30 in.

Name: ..... Date: ..... Period: .....

The two histograms represent the test scores on two different tests, by the same group of students. Use these histograms for Problems 4–8.



4. For each test, which interval contains the most scores?

a Test 1

b Test 2

5. Do the two data sets have approximately the same center? Explain your thinking.

6. Do the two data sets have approximately the same spread? Explain your thinking.

7. Andre says that overall, students scored better on Test 1 because there is a larger peak. Do you agree with Andre? Explain your thinking.

8. How many students scored an 80 or higher on each test?

a Test 1

b Test 2

Name: ..... Date: ..... Period: .....

Additional Practice 8.07

1. Which expressions could you use to calculate the mean of this data set? Select *all* that apply.

$12, 9, 15, 16, 12, 13$

- ☐ **A.** $(12 + 9 + 15 + 16 + 12 + 13) \cdot 6$
- ☐ **B.** $(12 + 9 + 15 + 16 + 12 + 13) \div 6$
- ☐ **C.** $\frac{12 + 9 + 15 + 16 + 12 + 13}{6}$
- ☐ **D.** $77 \cdot 6$
- ☐ **E.** $77 \div 6$

2. This data set represents the daily high temperatures for Minneapolis, Minnesota, in degrees Celsius.

6	9	8	10	8	6	9

What was the average high temperature? Show your thinking.

3. The mean of four numbers is 12. Three of the numbers are 8, 12, and 12. What is the fourth number? Show or explain your thinking.

4. This data set represents the number of goals a soccer team scored at each game during their season.

3	5	8	2	4	3	1
0	1	1	5	3	2	4

What was the average number of goals scored at each game? Show your thinking.

Name: ..... Date: ..... Period: .....

5. An art teacher is rearranging four bags of popsicle sticks so that each bag contains an equal number of sticks. Currently Bag A has 45 sticks, Bag B has 25 sticks, Bag C has 16 sticks, and Bag D has 34 sticks. Select *all* the ways the art teacher could make each bag have the same number of popsicle sticks.

- ☐ **A.** Remove 5 popsicle sticks from Bag D and 15 popsicle sticks from Bag A. Redistribute the 20 sticks that were removed into Bags B and D so there are 30 sticks in each bag.
- ☐ **B.** Remove 5 popsicle sticks from Bag D and place them in Bag B.
- ☐ **C.** Remove 15 popsicle sticks from Bag A and place them in Bag B. Remove 5 popsicle sticks from Bag D and place them in Bag C.
- ☐ **D.** Remove 15 popsicle sticks from Bag A and place them in Bag C. Remove 5 popsicle sticks from Bag D and place them in Bag B.
- ☐ **E.** Remove all the popsicle sticks and make four equal piles, which will contain 30 sticks. Then put each pile in one of the bags.

6. Noah babysat 6 times. He earned $24, $25, $31, $32, and $28 for the first 5 babysitting jobs. How much did Noah earn at the sixth babysitting job if the average amount he earned was $27? Show your thinking.

7. In her math class, Priya's teacher gives 5 quizzes, each worth 10 points. After 4 of her quizzes, Priya has scores of 7, 10, 8, and 6. How many points does Priya have to score on the last quiz to have an average score of 8? Show or explain your thinking.

8. While playing a card game, Shawn kept score for the first 5 hands, as shown in the table. Shawn claims that the mean score per hand is 15.

14	10	15	20	16

Is Shawn correct? If yes, explain how Shawn is correct. If not, explain how to calculate the correct mean.

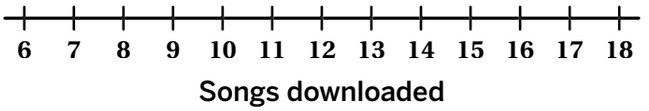
Name: ..... Date: ..... Period: .....

Additional Practice 8.08

The table shows the number of songs downloaded in a week by 5 different students. Use this data for Problems 1–4.

7	14	11	15	13

1. Create a dot plot for this data.



2. Calculate the mean for this data set. Show your thinking.

3. In the table, record the distance of each data point from the mean and its location relative to the mean.

Songs downloaded	Distance from the mean	*Greater than* or *less than* the mean?
7		
14		
11		
15		
13		

4. Calculate the sum of all the distances to the left of the mean, and then calculate the sum of the distances to the right of the mean. Explain how these sums show that the mean is a balance point for the values in the data set.

Name: ..... Date: ..... Period: .....

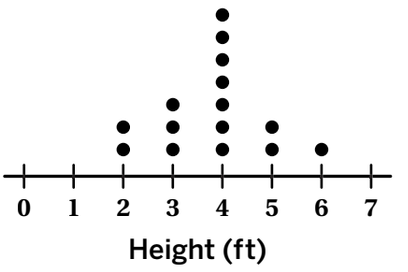
5. This table shows three data sets that show the scores on several quizzes.

Lin	10	6	6	8	8
Clare	10	9	10	10	9
Tyler	8	6	8	9	9

a Determine the mean score for each student.

b Order the students by their mean values, from least to greatest.

6. This dot plot shows the height of several tomato plants, in feet, that are in a garden. Kiran estimated the mean height to be 4 ft, Elena estimated the mean height to be 3 ft, and Bard estimated the mean height to 4.5 ft.

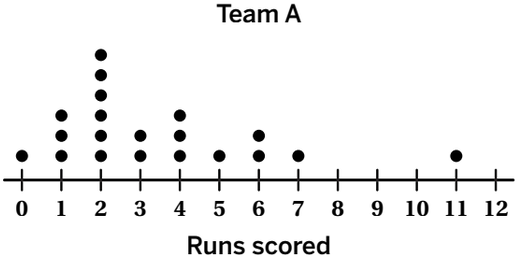


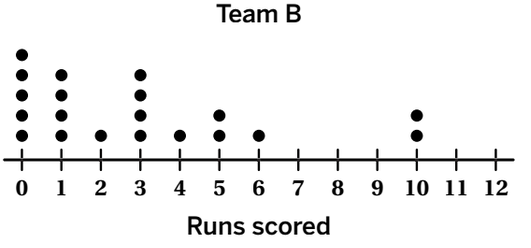
a Whose estimate is best? Explain your thinking.

b Calculate the exact mean.

7. Jada scored 85% on her first social studies test and 92% on her second social studies test. Her mean percent after three social studies tests was 84%.
What was Jada's percent on her third test? Show or explain your thinking.

8. The two dot plots show the number of runs scored by two different baseball teams. Andre says that Team A has a higher average of runs scored, while Han says that Team B has a higher average of runs scored. Who is correct? Explain your thinking.





Name: Date: Period:

Additional Practice 8.09

Problems 1–4. This table shows the amount of time it takes **5** laptops to charge to **100**%. The mean charge time is **30** minutes.

Charge Time (min)	30	31	29	29	31

1. Fill in the absolute deviation of each value from the mean.

Charge Time (min)	30	31	29	29	31
Absolute Deviation					

2. What is the sum of the absolute deviations?

A. 0

B. 3

C. 4

D. 5

3. Calculate the mean absolute deviation (MAD) of this data set. Show your work.

4. Based on the calculated MAD, how are the data points spread around the mean?

A. The MAD is a smaller value, so the data points are *less* spread out around the mean.

B. The MAD is a smaller value, so the data points are *more* spread out around the mean.

C. The MAD is a larger value, so the data points are *less* spread out around the mean.

D. The MAD is a larger value, so the data points are *more* spread out around the mean.

Name: ..... Date: ..... Period: .....

Problems 5–7. Mia would like to know how long her classmates studied for an upcoming French exam. This table shows the amount of time **5** students studied for the exam. Their mean study time was **90** minutes.

Study Time (min)	80	92	111	140	27

5. Fill in the absolute deviation of each value from the mean.

Study Time (min)	80	92	111	140	27
Absolute Deviation					

6. What is the sum of the absolute deviations?

A. 28.7

B. 29.2

C. 30.4

D. 31.6

7. Describe how the calculated MAD measures the spread of the data around the mean study time.

Name: Date: Period:

Additional Practice 8.10

Problems 1–2. Priya runs on a track team. Here are some statistics from her first year and third year for running a mile.

	First Year (in minutes)	Third Year (in minutes)
Mean	9.8	7.2
MAD	1.9	0.9

1. Priya's average time for a mile decreased from her first to third year. Choose what the decrease could represent.

A. On average, Priya runs the mile faster in her third year than in her first year.

B. On average, Priya runs the mile slower in her third year than in her first year.

C. On average, Priya runs the mile in the same amount of time as her first and third year. 4

D. More information is needed.

2. Priya's MAD decreased from 1.9 to 0.9. Choose what the decrease could represent.

A. Priya's run times for a mile are *equally* spread out.

B. Priya's run times for a mile are *more* spread out.

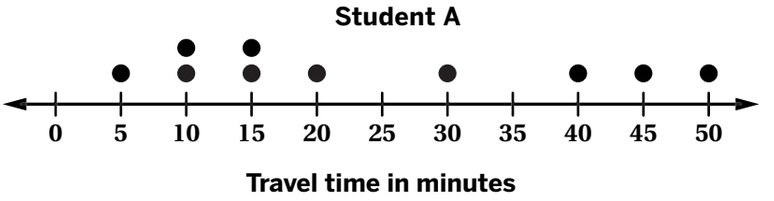
C. Priya's run times for a mile are *less* spread out.

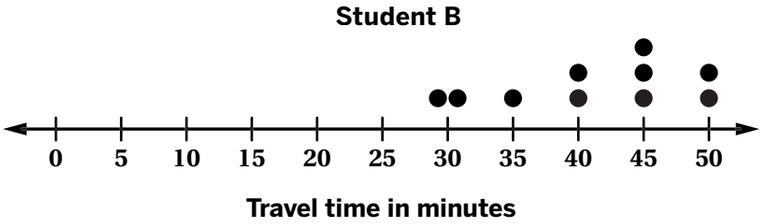
D. More information is needed.

3. Based on these results, is Priya running faster and more consistent in her third year than in her first year? Explain your thinking.

Name: ..... Date: ..... Period: .....

Problems 4–6. The dot plots show the amount of time that it took two students to get to school for 10 days.





4. Choose the average travel time for Student A.

A. 12 minutes

B. 24 minutes

C. 30 minutes

D. 36 minutes

5. Does the average travel time for Student B appear higher than Student A? Circle one.

Yes No Maybe

Explain your thinking.

6. Which student appears to have more consistent travel times? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 8.11

1. Select *all* the true statements about the median.

- ☐ **A.** The median is the middle number.
- ☐ **B.** If there are 9 data points, calculate the average of the two in the middle.
- ☐ **C.** The data set needs to be in numerical order before determining the median.
- ☐ **D.** The median represents both a measure of center and a typical number.
- ☐ **E.** The mean and median are always the same.

2. This data set shows the number of tornadoes in Texas over the last several years.

89	184	58	186	106	258	47	84	121

a Order the data from least to greatest.

b Calculate the median of the data set.

3. Diego's score for each hole in mini golf is shown.

3	4	1	6	4	6	3	3	2
5	4	3	5	7	2	4	4	1

What was his median score?

- ☐ **A.** 3
- ☐ **B.** 4
- ☐ **C.** 6
- ☐ **D.** 9

4. Shawn and Lin are reading a trilogy of books. The tables list the number of minutes each of them read on several days over the past few weeks.

Shawn	30	30	25	15	40	35	20	20	30	25	35	40
Lin	15	15	25	20	15	40	30	40	40	30	25	20

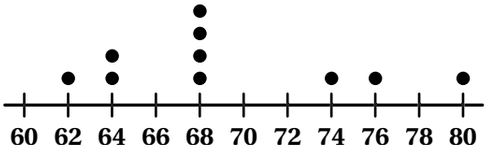
a Determine the median of each data set.

b Who typically read more? Explain your thinking.

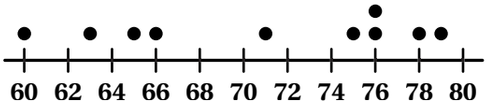
Name: ..... Date: ..... Period: .....

5. Match each dot plot with its median.

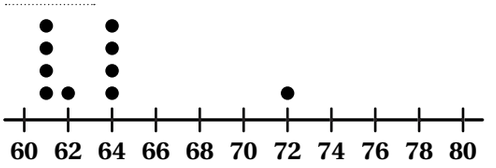
a



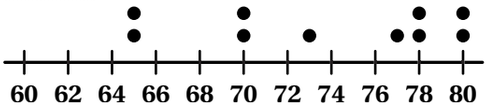
b .....



c .....

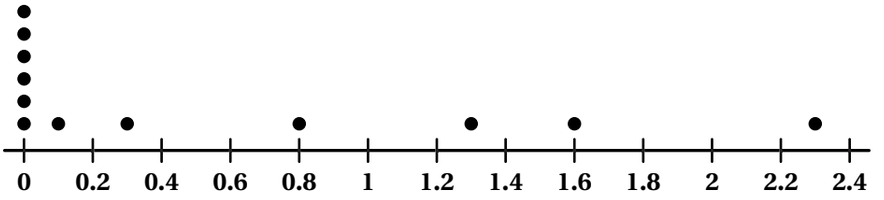


d .....



.....

6. This dot plot shows the average snowfall days each month for Portland, Oregon. Determine the median for the data set.



7. Elena is researching which backpack would be the best one to buy. She sorted the price of several backpacks and noticed that 6 backpacks were more expensive than the one she purchased, and 8 backpacks were less expensive than the one she purchased. Does this mean that the price of Elena's backpack is the median? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 8.12

1. Here is a dot plot that shows the ages of people eating at a restaurant. Which of these statements is true of the data set shown in the dot plot?

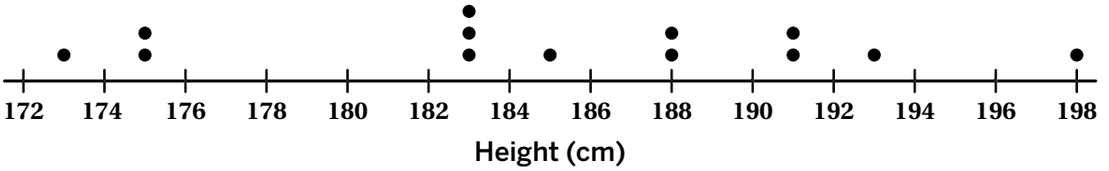
A. The mean cannot be determined.

B. The mean is less than the median.

C. The mean is approximately equal to the median.

D. The mean is greater than the median.

2. Here is a dot plot that shows the height of players on a professional women's basketball team. Which of these statements is true of the data set shown in the dot plot?



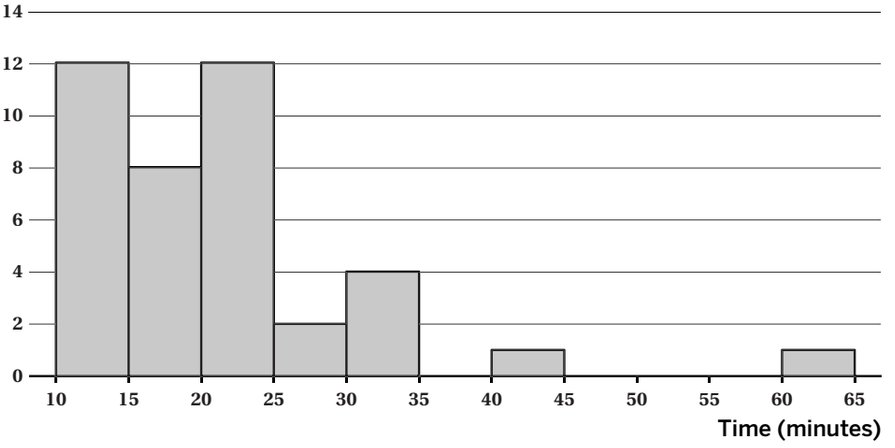
A. The median cannot be determined.

B. The median is less than the mean.

C. The median is approximately equal to the mean.

D. The median is greater than the mean.

3. The histogram shows the number of minutes Clare reads each day over several days. Without calculating, determine which has the greater value – the mean or the median. Explain your thinking.



Name: ..... Date: ..... Period: .....

4. In his social studies class, Kiran's quiz scores are:

2	2	6	7	7	8	9	9	9	10

The social studies teacher allows students to choose if their overall grade on the quizzes should be based on the mean or the median. Which should Kiran choose? Explain your thinking.

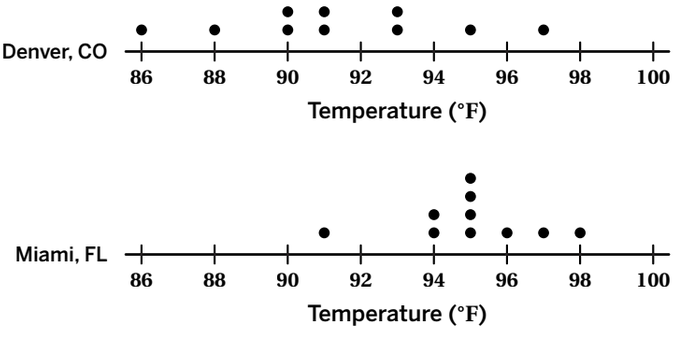
5. Priya asked each of five friends to throw a basketball from the three-point line until they scored. She recorded the number of unsuccessful attempts made by each friend as: $3, 4, 1, 2, 9$. However, Priya made an error in recording. The 3 in the data set should have been 13. How would changing the 3 to 13 affect the mean and median of the data set? Select *all* that apply.

- ☐ **A.** The mean would increase.
- ☐ **B.** The mean would decrease.
- ☐ **C.** The mean would stay the same.
- ☐ **D.** The median would increase.
- ☐ **E.** The median would decrease.
- ☐ **F.** The median would stay the same.

6. Tyler recorded the monthly average temperatures, in degrees Fahrenheit, in San Francisco for several months as $67, 67, 68, 70, 69$. The following month, the average temperature was 63. How did the temperature of 63 affect the mean and median of the data set? Select *all* that apply.

- ☐ **A.** The mean would increase more than 2 degrees.
- ☐ **B.** The mean would decrease more than 2 degrees.
- ☐ **C.** The mean would stay approximately the same.
- ☐ **D.** The median would increase more than 2 degrees.
- ☐ **E.** The median would decrease more than 2 degrees.
- ☐ **F.** The median would stay approximately the same.

7. The dot plots represent the daily high temperatures in degrees Fahrenheit for two different cities in July. Andre says that the mean temperature best describes both cities. Do you agree with Andre? Explain your thinking.



Name: ..... Date: ..... Period: .....

Additional Practice 8.13

1. This data set represents the scores of several students in a class on a 10-point quiz.

5	5	6	7	7	7	8	9	9	9	9	10	10	10	10

a What is the median score?

b What is the first quartile (Q1)?

c What is the third quartile (Q3)?

d What is the interquartile range (IQR)?

2. This data set represents the number of goals a soccer team scored at each game during their season.

3	5	8	2	4	3	1	0	1	1	5	3	2	4

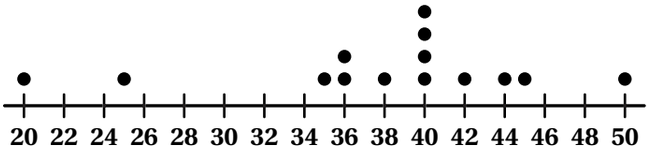
a What is the median score?

b What is the first quartile (Q1)?

c What is the third quartile (Q3)?

d What is the interquartile range (IQR)?

3. A group of students was asked, "How many songs are on your favorite playlist?" The results are shown on this dot plot.



Number of songs on playlist

a What is the median score?

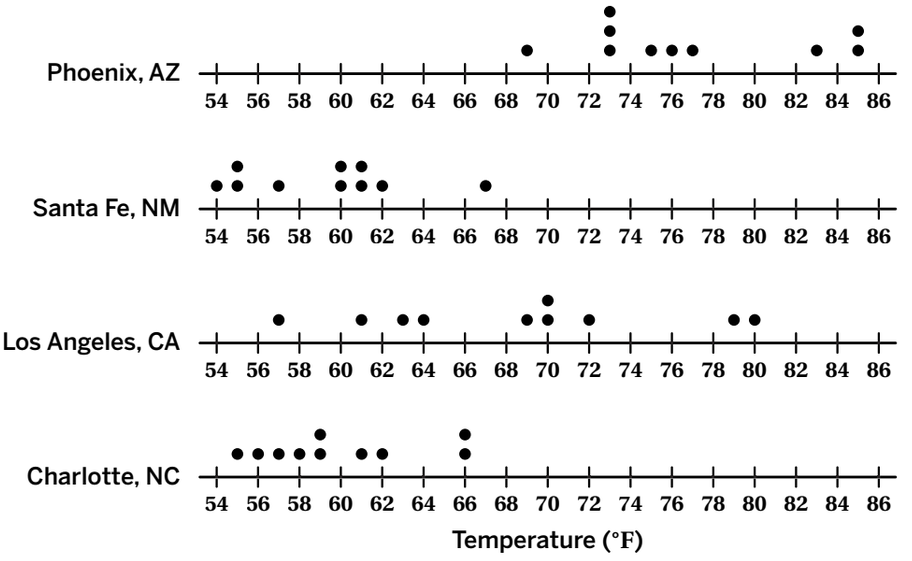
b What is the first quartile (Q1)?

c What is the third quartile (Q3)?

d What is the interquartile range (IQR)?

Name: ..... Date: ..... Period: .....

4. These dot plots represent the daily high temperatures in degrees Fahrenheit for four different cities in March. Match each dot plot with the correct median and IQR by writing the city's name next to each set of statistics.



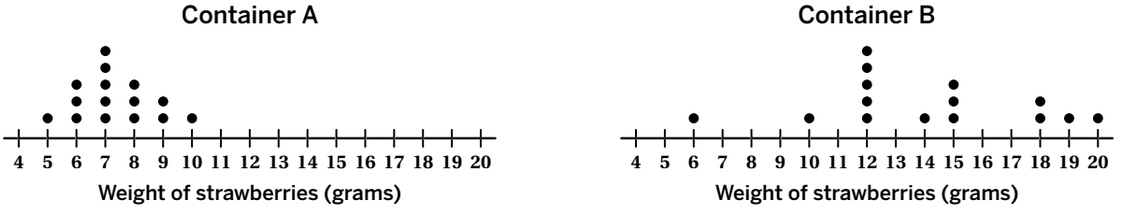
a Median: 59; IQR: 5

b Median: 60; IQR: 6

c Median: 69.5; IQR: 9

d Median: 75.5; IQR: 10

5. Tyler weighs strawberries from two different containers and records the weights on the dot plots. Which statement is true about the data sets?



A. Container A has a greater range.

B. Container A has a greater IQR.

C. Container A has a greater median.

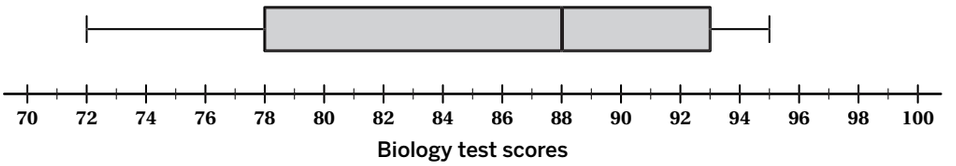
D. Container A has less variability.

6. Kiran and Clare exercised daily for the last 10 days and recorded how long they exercised each day. Kiran's median time was 50 minutes, with an IQR of 15. Clare's median time was 50 minutes, with an IQR of 25. Clare said her exercise time had less variability. Do you agree with Clare? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 8.14

1. This box plot summarizes the scores for a class on a recent biology test.

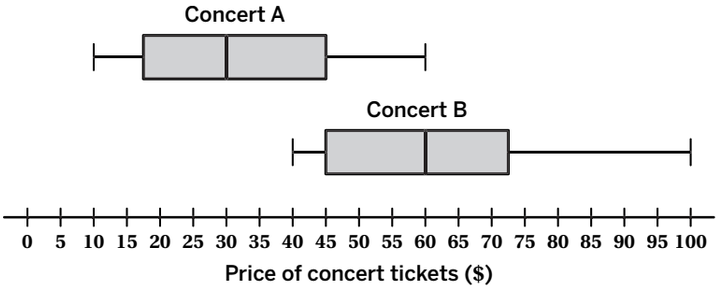


a What is the greatest score in this class?

b What is the median score in this class?

c What is the interquartile range (IQR) for this class?

2. The box plots summarize the price of 250 tickets sold for two different concerts



a How many tickets were sold for Concert A between $30 and $60?

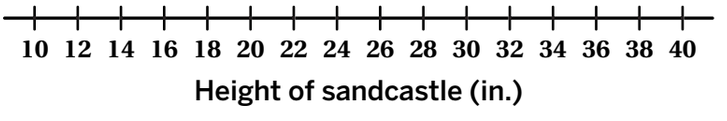
b What percent of tickets were sold for Concert B under $60?

c How many tickets were sold for Concert B between $45 and $100?

d What percent of tickets were sold for Concert A over $45?

3. The data shows the height, in inches, of several sandcastles built on the beach. Create a box plot to represent this data.

18	34	30
28	15	30
36	24	22

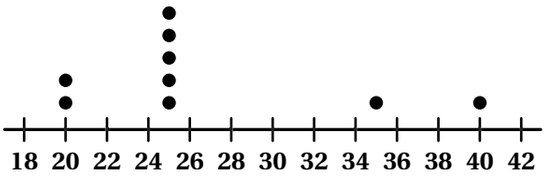


Name: ..... Date: ..... Period: .....

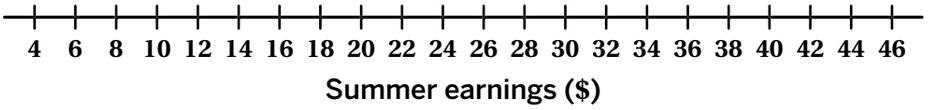
The data shows the amount of money Diego and Elena earned for doing odd jobs over the course of the summer. Use this information for Problems 4–6.

Diego:
Minimum: 10 **Q1:** 17 **Median:** 25 **Q3:** 30 **Maximum:** 45

Elena:



4. Create two box plots above the same number line to represent both sets of data. Make sure to label the box plot with *Diego* and *Elena*.



5. Which of the following statements are true about the box plots? Select *all* that apply.

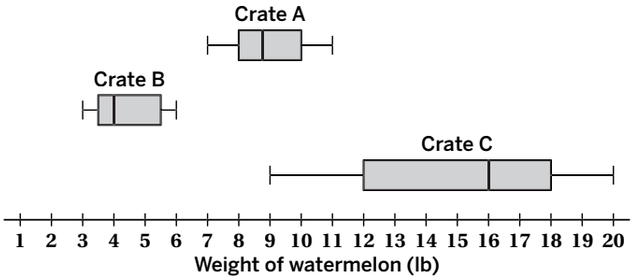
- ☐ **A.** The IQR is the same for both data sets.
- ☐ **B.** The median is the same for both data sets.
- ☐ **C.** Diego earned a greater range of money over the summer.
- ☐ **D.** About 50% of the money Elena earned was more than $23.
- ☐ **E.** About 25% of the money Diego earned was less than $30.

6. Diego says that 25% of the money that he and Elena earned is between $25 and $40. Do you agree with this statement? Explain your thinking.

Name: ..... Date: ..... Period: .....

Additional Practice 8.15

1. Watermelons were packed in 3 large crates. The weight of each watermelon in the crates were recorded. Here are three box plots that summarize the weights of the watermelons in each crate.



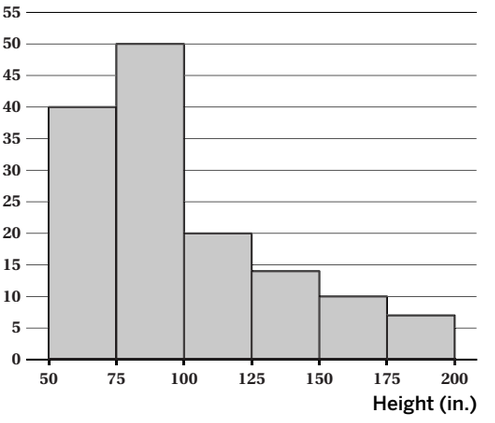
Select *all* of the statements that are true, according to the box plots.

- ☐ **A.** The heaviest watermelon was in Crate C.
- ☐ **B.** The lightest watermelon was in Crate A.
- ☐ **C.** The weights in Crate B were most variable.
- ☐ **D.** More than half of the watermelons in Crate B weighed the same amount as watermelons from Crate C.
- ☐ **E.** Crate C had the greatest median weight and the greatest IQR.
- ☐ **F.** The median weight for Crate A is about 7 pounds lighter than the median weight for Crate C.

2. There are 60 watermelons in Crate A, 80 watermelons in Crate B, and 40 watermelons in Crate C. Select *all* of the statements that are true, according to the box plot in Problem 1.

- ☐ **A.** There are about 30 watermelons between 8 and 10 lb in Crate A.
- ☐ **B.** There are about 10 watermelons that weigh more than 16 lb in Crate C.
- ☐ **C.** There are about the same number of watermelons in Crate B between 3.5 and 5.5 lb than in Crate A between 8 and 10 lb.
- ☐ **D.** There are about 60 watermelons that weigh less than 5.5 lb in Crate B.

3. This histogram shows the height of all the peach trees on an acre of land. Select *all* of the statements that are true, according to the histogram.

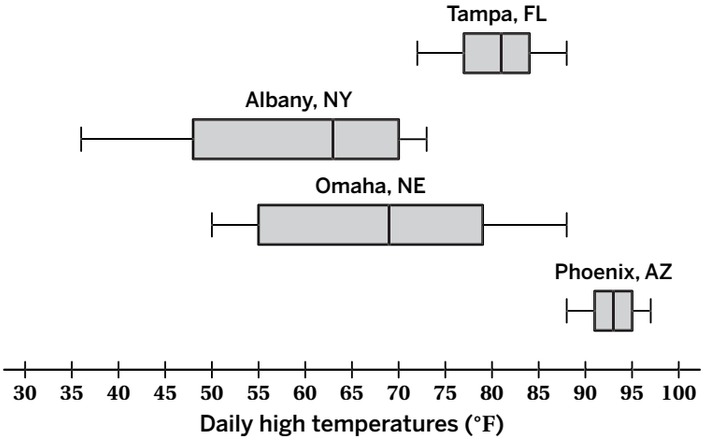


- ☐ **A.** There are about 180 peach trees on the acre of land.
- ☐ **B.** The median height is between 75 and 99 in.
- ☐ **C.** More than 50% of the tree's heights are less than 100 in.
- ☐ **D.** More than 25% of the tree's heights were greater than 150 in.

Name: ..... Date: ..... Period: .....

4. Consider the histogram from Problem 3. Shawn says the mean and MAD would best summarize the data. Tyler says the median and IQR would best summarize the data. Do you agree with Shawn or Tyler? Explain your thinking.

5. The box plots summarize the daily high temperatures in April in four different cities.

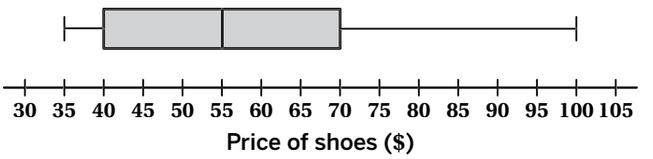


a Which city shows the greatest variability in temperature?

b Which city shows the least variability in temperature?

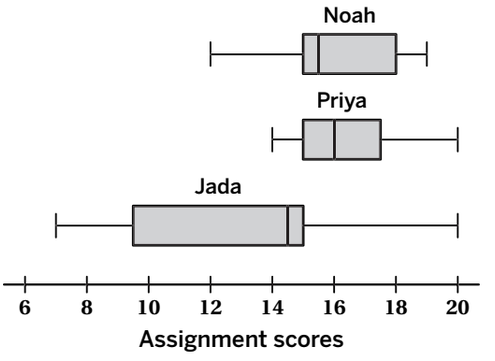
c Which city shows the lowest median temperature?

6. This box plot summarizes the cost of 100 pairs of shoes at a shoe store. Select *all* the statements that must be true based on the box plot.



- ☐ **A.** About 75% of the shoes cost $40 or less.
- ☐ **B.** At least half of the shoes cost more than $70.
- ☐ **C.** Most of the shoes cost between $40 and $70.
- ☐ **D.** About 50 shoes cost under $55.
- ☐ **E.** The most expensive shoes cost $70.

7. The box plots summarize the assignment scores of 20 assignments for Noah, Priya, and Jada.



a Whose score distributions are most alike? Explain your thinking.

b Whose scores show the greatest variability? Whose scores show the least variability?

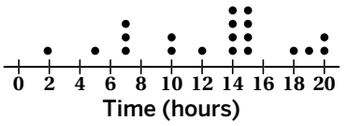
Name: ..... Date: ..... Period: .....

Additional Practice 8.16

1. Andre recorded the amounts of time that students in fourth, sixth, and eighth grade spent on social media, in hours per week. He made a dot plot of the data for each grade and provided a summary. Use Andre's summary to match each dot plot to the correct grade.

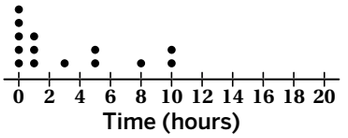
- Students in fourth grade seem to spend less time on social media than students in sixth and eighth grade.
- Students in eighth grade seem to spend the greatest range of time on social media.

a



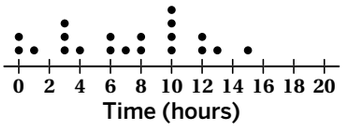
..... Fourth grade

b



..... Sixth grade

c



..... Eighth grade

2. Han recorded the number of shirts his clothing store sold each day for two weeks. The results are shown below.

34	26	16	22	25	42	28	25	30	43	25	32	20	24

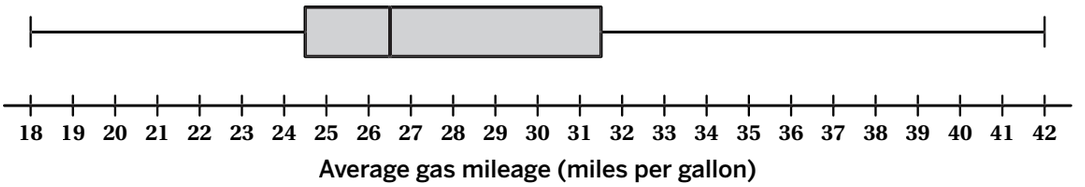
a Determine the average number of shirts Han sells each day.

b Determine the five-number summary for this data set.

c Determine the IQR for this data set.

d Determine the MAD for this data set. Round your answer to the nearest tenth.

3. The box plot displays the data on the average gas mileage for 80 different cars. How many cars are represented by the rectangle (box) between 24.5 and 31.5?

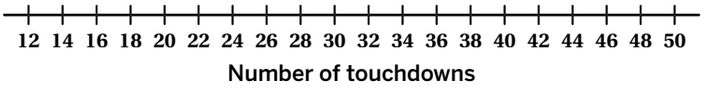


Name: Date: Period:

This data set shows the number of touchdowns scored throughout the season in two different football divisions. Use this data for Problem 4–5.

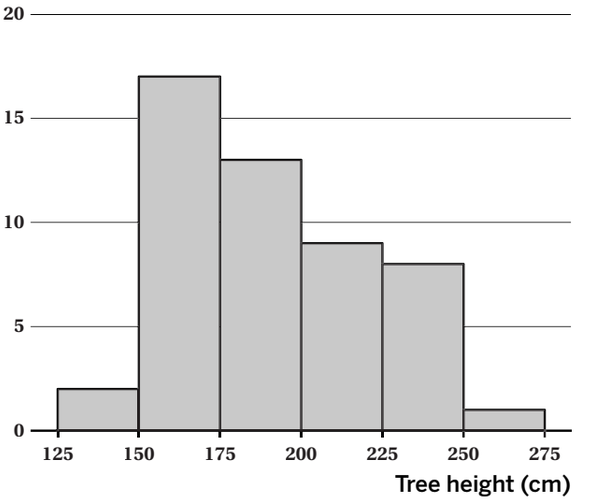
Division 1	28	34	24	40	24	44	34	50	38	25
Division 2	18	24	15	24	36	18	34	25	30	28

4. Draw two box plots, one for each football division. Make sure to label each box plot.



5. Jada says that Division 2 shows greater variability? Do you agree with Jada? Explain your thinking.

6. This histogram shows the height of trees throughout Mai's neighborhood.



a About how many trees are in Mai's neighborhood?

b Without calculating either measure, is the mean or the median a more appropriate measure of center for this data set? Explain your thinking

7. Refer to the histogram in Problem 6. Select *all* the statements that are true.

- ☐ **A.** The median height is greater than 175 cm.
- ☐ **B.** More than 50% of the trees are taller than 200 cm.
- ☐ **C.** The histogram can be used to determine the exact mean.
- ☐ **D.** The tallest tree in the neighborhood is 275 cm.
- ☐ **E.** The average height of the trees in the neighborhood is between 175 cm and 200 cm.