<div align="center">

**Parent/Student Directions - Instrucciones para padres / estudiantes**
**Math: April 6th-April 10th 2020**

</div>

**Monday/Lunes:** Today's lesson will focus on change of dimensions. Starting on p. 697, answer the questions based on the Construction description. Then, read and answer the questions on p. 698-699 making sure to focus on the concept box if you need help. After these pages have been completed, complete the Guided Practice problems on p. 700, the Independent Practice problems on p. 701 and then Hot Problems #7-8 on p. 702. If you are having trouble, here is a link to a video explaining the topic: https://www.youtube.com/watch?v=PG4jCvFUpgE

La lección de hoy se centrará en el cambio de dimensiones. A partir de la p. 697, responda las preguntas basadas en la descripción de Construcción. Luego, lea y responda las preguntas de la pág. 698-699 asegurándose de enfocarse en el cuadro de concepto si necesita ayuda. Después de completar estas páginas, complete los problemas de Práctica guiada en la pág. 700, los problemas de la práctica independiente en la pág. 701 y luego Hot Problems # 7-8 en la pág. 702. Si tiene problemas, aquí hay un enlace a un video que explica el tema: https://www.youtube.com/watch?v=PG4jCvFUpgE

**Tuesday/Martes:**

Today's lesson will focus on polygons on the coordinate plane. Starting on p. 705, graph the points on the coordinate plane and then identify the length and width of the shape. Then, read and answer the questions on p. 706-707 making sure to focus on the concept box if you need help. After these pages have been completed, complete the Guided Practice problems on p. 708, the Independent Practice problems on p. 709 and then Hot Problems #9-10 on p. 710. If you are having trouble, here is a link to a video explaining the topic: https://www.youtube.com/watch?v=HW6KBYSMlZs

La lección de hoy se centrará en los polígonos en el plano de coordenadas. A partir de la p. 705, grafica los puntos en el plano de coordenadas y luego identifica la longitud y el ancho de la forma. Luego, lea y responda las preguntas de la pág. 706-707 asegurándose de enfocarse en el cuadro de concepto si necesita ayuda. Después de completar estas páginas, complete los problemas de Práctica guiada en la pág. 708, los problemas de la práctica independiente en la pág. 709 y luego Hot Problems # 9-10 en la pág. 710. Si tiene problemas, aquí hay un enlace a un video que explica el tema: https://www.youtube.com/watch?v=HW6KBYSMlZs

**Wednesday/Miercoles:**

Today's lesson will focus on area of composite figures. Starting on p. 717, read the vocabulary word and then draw the figure based on the directions. Then, read and answer the questions on p. 718-719 making sure to focus on the concept box if you need help. After these pages have been completed, complete the Guided Practice problems on p. 720, the Independent Practice problems on p. 721 and then Hot Problems #7-8 on p. 722. If you are having trouble, here is a link to a video explaining the topic: https://www.youtube.com/watch?v=loAA3TCNAvU

La lección de hoy se centrará en el área de figuras compuestas. A partir de la p. 717, lee la palabra del vocabulario y luego dibuja la figura según las instrucciones. Luego, lea y responda las preguntas de la pág. 718-719 asegurándose de enfocarse en el cuadro de concepto si necesita ayuda. Después de completar estas páginas, complete los problemas de Práctica guiada en la pág. 720, los problemas de la práctica independiente en la pág. 721 y luego Hot Problems # 7-8 en la pág. 722. Si tiene problemas, aquí hay un enlace a un video que explica el tema: https://www.youtube.com/watch?v=loAA3TCNAvU

**Thursday/Jueves:**

This is a catch-up day. Students can use the day complete any unfinished assignments and get any questions answered they may have by their teacher. You can ask me questions through Zoom or Dojo. Use the rest of your day to "sharpen the saw!"

Este es un día de recuperación. Los estudiantes pueden usar el día para completar cualquier tarea no terminada y obtener cualquier pregunta que su maestro pueda responder. Puedes hacerme preguntas a través de Zoom o Dojo. Use el resto de su día para "afilar la sierra."


**Friday/Viernes:**

Today is a holiday so you have the day off! Be some exercise in, read a book or something else productive. Have a great weekend!

¡Hoy es feriado, así que tienes el día libre! Haga ejercicio, lea un libro u otra cosa productiva. ¡Ten un excelente fin de semana!

# Changes in Dimension

## Real-World Link

**Construction** Mr. Blackwell is building a rectangular dog house. The floor of the dog house is 4 feet long and 2 feet wide.

1. Draw the floor of the dog house on the graph paper below.

2. Add the lengths of the sides to find the perimeter.

3. Multiply the length and width to find the area.

4. Mr. Blackwell doubles the width of the dog house. Draw the new floor below.

5. How did the perimeter and area of the floors change from the first to the second dog house? _____

### Essential Question

HOW does measurement help you solve problems in everyday life?

**CCSS Common Core State Standards**

Content Standards
6.G.1

**MP Mathematical Practices**
1, 2, 3, 4, 7

Which **MP Mathematical Practices** did you use?
Shade the circle(s) that applies.

1 Persevere with Problems
2 Reason Abstractly
3 Construct an Argument
4 Model with Mathematics
5 Use Math Tools
6 Attend to Precision
7 Make Use of Structure
8 Use Repeated Reasoning

6th Math Week 2

Work Zone

## Changing Dimensions: Effect on Perimeter

**Words**    If the dimensions of a polygon are multiplied by $x$, then the perimeter of the polygon changes by a factor of $x$.

**Model**
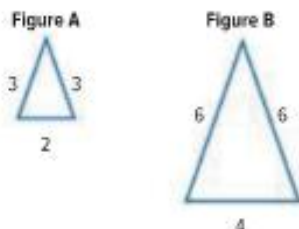
Figure A        Figure B



**Example**    The dimensions of Figure A are multiplied by 2 to produce the dimensions of Figure B.

$\underbrace{\text{perimeter of Figure A}}_{8} \cdot \mathbf{2} = \underbrace{\text{perimeter of Figure B}}_{16}$

$8 \qquad \cdot\, \mathbf{2} = \qquad 16$

Notice that all the dimensions of the figure must change using the same factor, $x$.

## Example

**1.** Suppose the side lengths of the parallelogram at the right are tripled. What effect would this have on the perimeter? Justify your answer.

3 in.

4 in.
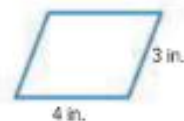
The dimensions are 3 times greater.

original perimeter: $2(4) + 2(3) = 14$ in.

new perimeter: $2(12) + 2(9) = 42$ in.

compare perimeters: 42 in. ÷ 14 in. = 3

9 in.

12 in.
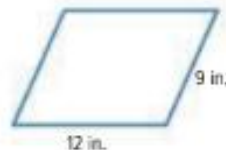
So, the perimeter is 3 times the perimeter of the original figure.

**Got it?** Do this problem to find out.

**a.** Suppose the side lengths of the trapezoid at the right are multiplied by $\frac{1}{2}$. What effect would this have on the perimeter? Justify your answer.
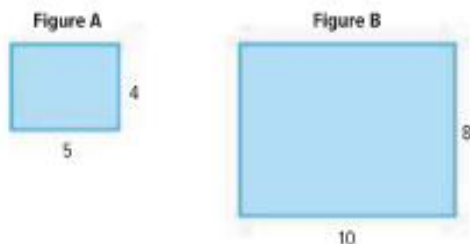
13 cm

14 cm             14 cm

24 cm

a. _____

6th Math Week 2
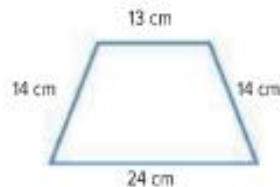
## Changing Dimensions: Effect on Area

**Words**    If the dimensions of a polygon are multiplied by $x$, then the area of the polygon changes by $x \cdot x$ or $x^2$.

**Model**

Figure A

4

5

Figure B

8

10

**Example**    The dimensions of Figure A are multiplied by 2 to produce the dimensions of Figure B.

$$\underbrace{\text{area of Figure A}}_{20} \cdot \underbrace{2^2}_{\cdot 4} = \underbrace{\text{area of Figure B}}_{80}$$

Notice that all the dimensions of the figure must change using the same factor, $x$.

## Example

Tutor

**2.** The side lengths of the triangle at the right are multiplied by 5. What effect would this have on the area? Justify your answer.

1 cm

2 cm

The dimensions are 5 times greater.

original area: $\frac{1}{2} \cdot 2 \cdot 1 = 1 \text{ cm}^2$

5 cm

new area: $\frac{1}{2} \cdot 10 \cdot 5 = 25 \text{ cm}^2$

10 cm

compare areas:
$25 \text{ cm}^2 \div 1 \text{ cm}^2 = 25$ or $5^2$

So, the area is $5^2$ or 25 times the area of the original figure.
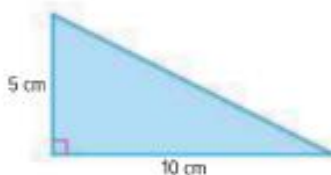
## Got it?    Do this problem to find out.

**b.** A rectangle measures 2 feet by 4 feet. Suppose the side lengths are multiplied by 2.5. What effect would this have on the area? Justify your answer.
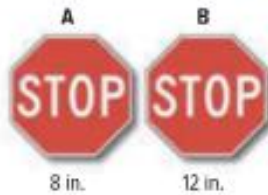
b. _____

6th Math Week 2

## Example

**3.** A stop sign is in the shape of a regular octagon. Sign A shown at the right has an area of 309 square inches. What is the area of sign B?

Since $8 \times 1.5 = 12$, the area of sign B is $1.5^2$ times the area of sign A.
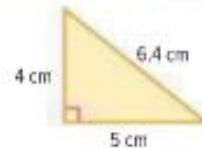
$309 \cdot 1.5^2 = 309 \cdot 2.25$ or $695.25$

So, the area of sign B is 695.25 square inches.

A 8 in.

B 12 in.

## Guided Practice

**Refer to the figure at the right for Exercises 1 and 2. Justify your answers.** (Examples 1–2)

6.4 cm
4 cm
5 cm

**1.** Each side length is doubled. Describe the change in the perimeter.

_____

_____

_____

**2.** Each side length is tripled. Describe the change in the area.

_____

_____

_____

**3.** Different sizes of regular hexagons are used in a quilt. Each small hexagon has side lengths of 4 inches and an area of 41.6 square inches. Each large hexagon has side lengths of 8 inches. What is the area of each large hexagon? (Example 3) _____

_____

**4.** **Building on the Essential Question** How can exponents help you find the area of a rectangle if each side length is multiplied by $x$? _____

_____

_____

**Rate Yourself!**

How confident are you about changes in dimension? Check the box that applies.
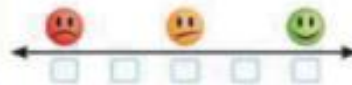
☹ ☺ ☺
☐ ☐ ☐ ☐ ☐

For more help, go online to access a Personal Tutor.

Tutor

6th Math Week 2

## Independent Practice

**1** Each side length of the parallelogram at the right is multiplied by 4. Describe the change in the perimeter. Justify your answer. (Example 1)
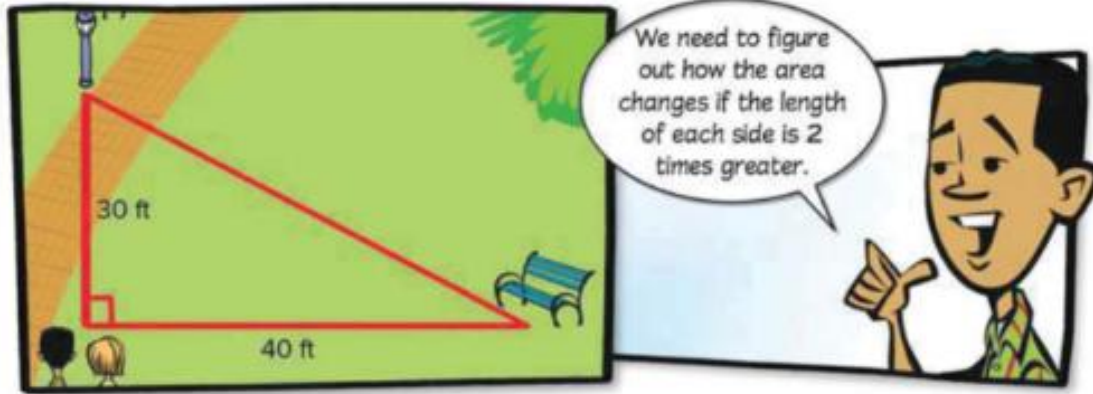
_____

_____

_____

8 cm

10 cm
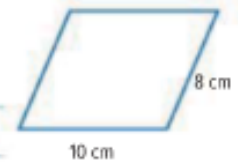
**2.** The base and height of the triangle at the right are multiplied by 4. Describe the change in the area. Justify your answer. (Example 2)

_____

_____

_____

5 m

6 m
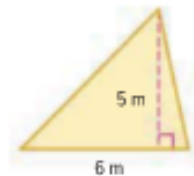
**3** Each side length of the rectangle is multiplied by $\frac{1}{3}$. Describe the change in the area. Justify your answer. (Example 2)

_____

_____

_____

15 yd

21 yd

**4.** Different sizes of regular pentagons are used in a stained glass window. Each small pentagon has side lengths of 4 inches and an area of 27.5 square inches. Each large pentagon has side lengths of 8 inches. What is the area of each large pentagon? (Example 3)

8 in.

4 in.

_____

_____
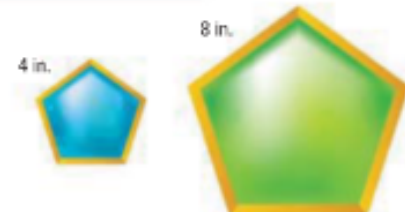
**5.** 🔴 **Justify Conclusions** A dollhouse has a bed with dimensions $\frac{1}{12}$ the size of a queen-size bed. A queen-size bed has an area of 4,800 square inches, and a length of 80 inches. What are the side lengths of the dollhouse bed? Justify your answer. _____

_____

_____

_____

6th Math Week 2

6. **Reason Abstractly** Refer to the graphic novel frame below for Exercises a–b.



> We need to figure out how the area changes if the length of each side is 2 times greater.

30 ft

40 ft

a. What is the original area of the triangle? _____

b. What is the new area if the sides are all two times longer?

_____

## H.O.T. Problems  Higher Order Thinking

7. **Identify Structure** Sketch a triangle with the side lengths labeled. Sketch and label another triangle that has a perimeter two times greater than the perimeter of the first triangle.

. **Persevere with Problems** The corresponding side lengths of two figures have a ratio of $\frac{a}{b}$. What is the ratio of the perimeters? the ratio of the areas?

_____

9. **Reason Inductively** The larger square shown has a perimeter of 48 units. The smaller square inside has a perimeter that is 2 times smaller. What are the side lengths of the larger and smaller square? Explain. _____
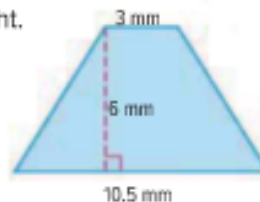
_____

_____

6th Math Week 2
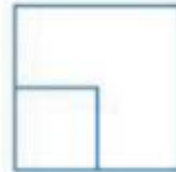
**15.** Fill in the boxes to complete each statement about the trapezoid at the right.

   **a.** When the dimensions of the trapezoid are multiplied

   by 2, the area is [    ] times greater.

   **b.** When the dimensions of the trapezoid are multiplied

   by [    ] , the area is 16 times greater.

   **c.** When the dimensions of the trapezoid are multiplied

   by 5, the area is [    ] times greater.

3 mm

6 mm

10.5 mm

**16.** The side lengths of triangle *A* are equal. The side lengths of triangle *B* are also equal. Triangle *A* has a perimeter of 9 meters. Triangle *B* has a perimeter of 27 meters. Select the correct values to make each statement true.

| 3 | 23.4 |
|---|---|
| 6 | 27 |
| 9 | 35.1 |
| 11.7 | |

   **a.** The length of each side in triangle *A* is [    ] meters.

   **b.** The length of each side in triangle *B* is [    ] meters.

   **c.** The area of triangle *A* is about 3.9 square meters. The area

   of triangle *B* is about [    ] square meters.

## (CCSS) **Common Core Spiral Review**

**Graph the opposite of each number on a number line.** 6.NS.6a
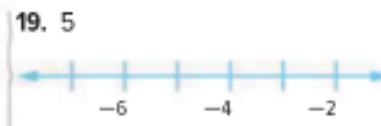
**17.** 0

**18.** −7

**19.** 5

**20.** Graph 2 and 9. Then use the number line to find the distance between

9 and 2. 6.NS.8, 6.NS.5 _____

**21.** John and his dad are playing catch on the football field. John is standing on the 10-yard line. His dad is standing on the 25-yard line. How far is John from his dad? If his dad moves to the 20-yard line, what is the distance between them now? 4.OA.3

_____

6th Math Week 2
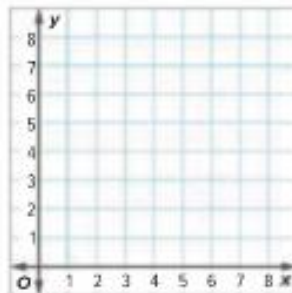
# Polygons on the Coordinate Plane

## Real-World Link

**Tools**

**Maps** Graph points on a coordinate plane to draw a map of an outdoor stadium. Complete the table to identify each shape.

| Location | Vertices | Shape |
|---|---|---|
| Stage | (2, 6), (2, 9), (6, 9), (6, 6), (5, 5), (3, 5) | |
| Bleachers | (7, 5), (7, 9), (9, 9), (9, 5) | |
| Concession Stand | (5, 2), (5, 4), (7, 4), (7, 2) | |



1. Find the dimensions of the bleachers.

   Length:_____    Height:_____

2. The length of the line from point (2, 6) to point (2, 9) is 3 units long. How can you use the y-coordinates to find the length of the line?

   _____

### Essential Question

HOW does measurement help you solve problems in everyday life?

### Common Core State Standards

**Content Standards**
6.G.1, 6.G.3, 6.NS.8

**Mathematical Practices**
1, 2, 3, 4, 5, 7

### Which MP Mathematical Practices did you use?
Shade the circle(s) that applies.

① Persevere with Problems
② Reason Abstractly
③ Construct an Argument
④ Model with Mathematics
⑤ Use Math Tools
⑥ Attend to Precision
⑦ Make Use of Structure
⑧ Use Repeated Reasoning

6ᵗʰ Math Week 2

# Find Perimeter

You can use the coordinates of a figure to find its dimensions by finding the distance between two points. To find the distance between two points with the same x-coordinates, subtract their y-coordinates. To find the distance between two points with the same y-coordinates, subtract their x-coordinates.

## Examples

**1.** A rectangle has vertices A(2, 8), B(7, 8), C(7, 5), and D(2, 5). Use the coordinates to find the length of each side. Then find the perimeter of the rectangle.
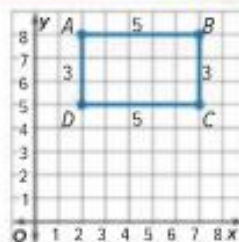


**Width:** Find the length of the horizontal lines.

$\overline{AB}$ is 5 units long.     $\overline{CD}$ is 5 units long.

**Length:** Find the length of the vertical lines.

$\overline{BC}$ is 3 units long.     $\overline{DA}$ is 3 units long.

Add the lengths of each side to find the perimeter.
$5 + 5 + 3 + 3 = 16$ units

So, rectangle ABCD has a perimeter of 16 units.

**Perimeter and Area**
Remember that perimeter is the distance around a closed figure. Area is the number of square units needed to cover the surface enclosed by a geometric figure.

**2.** Rectangle ABCD has vertices A(2, 1), B(2, 5), C(4, 5), and D(4, 1). Use the coordinates to find the length of each side. Then find the perimeter of the rectangle.

**Width:** Subtract y-coordinates.

$AB: 5 - 1 = 4$ units     $CD: 5 - 1 = 4$ units

**Length:** Subtract x-coordinates.

$AD: 4 - 2 = 2$ units     $BC: 4 - 2 = 2$ units

Add the lengths of each side to find the perimeter.
$4 + 2 + 4 + 2 = 12$ units

**Got it?** Do these problems to find out.

Use the coordinates to find the length of each side. Then find the perimeter of the rectangle.

a. E(3, 6), F(3, 8), G(7, 8), H(7, 6)

b. I(1, 4), J(1, 9), K(8, 9), L(8, 4)
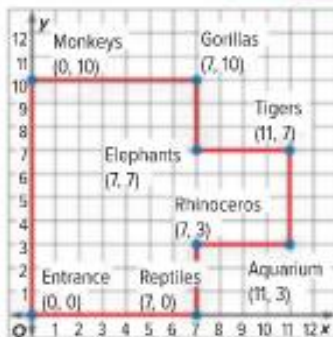
a. _____

b. _____

6th Math Week 2

## Example

**3.** Each grid square on the zoo map has a length of 200 feet. Find the total distance, in feet, around the zoo.



When x-coordinates are the same, subtract the y-coordinates. When y-coordinates are the same, subtract the x-coordinates.

$10 + 7 + 3 + 4 + 4 + 4 + 3 + 7 = 42$ units

Multiply by 200 feet to find the total distance.

$42 \times 200 = 8{,}400$ feet. The total distance is 8,400 feet.

**Got it?** Do this problem to find out.

c. The coordinates of the vertices of a garden are (0, 1), (0, 4), (8, 4), and (8, 1). If each unit represents 12 inches, find the perimeter in inches of the garden.

c. _____

# Find Area

You can find the area of a figure that has been drawn grid paper or graphed on the coordinate plane.

## Example

**4.** Find the area of the figure in square units.

The figure can be separated into a rectangle and a trapezoid.



**Area of rectangle**

$A = \ell \times w$

$A = 5 \times 2$ or 10
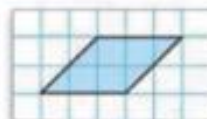
**Area of trapezoid**

$A = \frac{1}{2}h(b_1 + b_2)$

$A = \frac{1}{\overset{1}{2}}(\overset{1}{2})(3 + 4)$ or 7
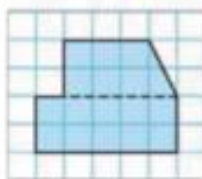
So, the area of the figure is $10 + 7$ or 17 square units.

**Got it?** Do this problem to find out.

d. Find the area, in square units, of the figure at the right.
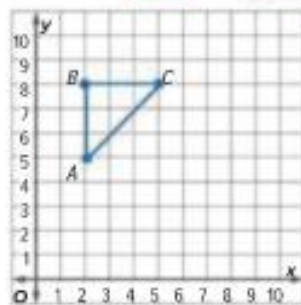
d. _____

6th Math Week 2

## Example

### 5.
A figure has vertices $A(2, 5)$, $B(2, 8)$, and $C(5, 8)$. Graph the figure and classify it. Then find the area.

Plot the points. Connect the vertices. The figure is a right triangle.

The height from point $A$ to point $B$ is 3 units. The base from point $B$ to point $C$ is 3 units.
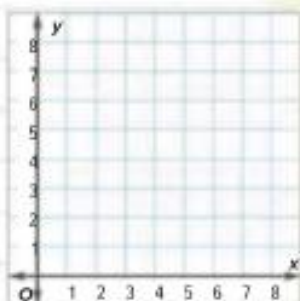
$A = \frac{1}{2}bh$      Area formula of a triangle

$A = \frac{1}{2}(3)(3)$      Replace $b$ with 3 and $h$ with 3.

$A = 4.5$      Multiply.

Triangle $ABC$ has an area of 4.5 square units.

**Got it?** Do this problem to find out.

Graph the figure and classify it. Then find the area.

e. $A(3, 3)$, $B(3, 6)$, $C(5, 6)$, $D(8, 3)$

e. _____

## Guided Practice

Use the coordinates to find the length of each side of the rectangle. Then find the perimeter. (Examples 1 and 2)

1. $L(3, 3)$, $M(3, 5)$, $N(7, 5)$, $P(7, 3)$

2. $P(3, 0)$, $Q(6, 0)$, $R(6, 7)$, $S(3, 7)$

3. Mrs. Piel is building a fence around the perimeter of her yard for her dog. The coordinates of the vertices of the yard are $(0, 0)$, $(0, 10)$, $(5, 10)$, and $(5, 0)$. If each grid square has a length of 100 feet, find the amount of wire, in feet, needed for the fence. What is the shape of her yard? (Example 3)

4. **Building on the Essential Question** How can coordinates help you to find the area of figures on the coordinate plane?

**Rate Yourself!**

How well do you understand polygons on the coordinate plane? Circle the image that applies.

Clear    Somewhat Clear    Not So Clear

For more help, go online to access a Personal Tutor.

6th Math Week 2

## Independent Practice

**Use the coordinates to find the length of each side of the rectangle. Then find the perimeter.** (Examples 1 and 2)
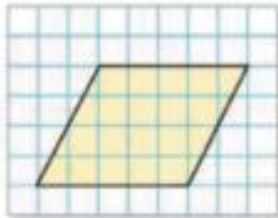
🏠 1. $D(1, 2)$, $E(1, 7)$, $F(4, 7)$, $G(4, 2)$

_____

_____

_____

**2.** $Q(0, 0)$, $R(4, 0)$, $S(4, 4)$, $T(0, 4)$
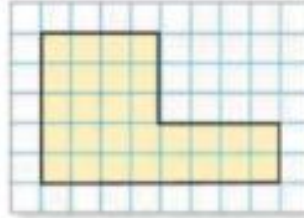
_____

_____

_____

**3.** Natasha is building a rectangular picture frame for her favorite photo. The coordinates of the vertices of the frame are $(0, 0)$, $(0, 8)$, $(12, 8)$, and $(12, 0)$. Each grid square has a length of 3 centimeters. Find the amount of wood, in centimeters, needed for the perimeter. (Example 3)

_____

_____

_____

**Find the area of each figure in square units.** (Example 4)
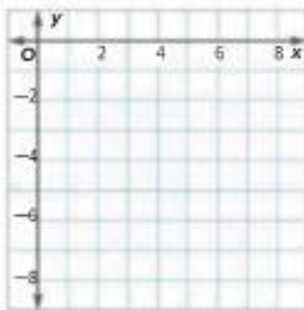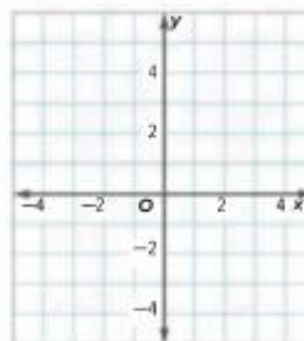
**4.** _____



**5.** _____



**Graph each figure and classify it. Then find the area.** (Example 5)

**6.** $R(3, -2)$, $S(7, -2)$, $T(8, -6)$, $V(1, -6)$



🏠 7. $A(-3, -4)$, $B(-3, 5)$, $C(2, 5)$, $D(2, -4)$

6ᵗʰ Math Week 2

8. **MP** **Use Math Tools** A rectangle has a perimeter of 20 units. The coordinates of three of the vertices are (0, 0), (6, 0), and (6, 4) as shown on the graph.
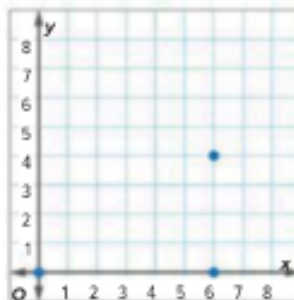
a. What is the coordinate of the missing vertex?

_____

b. Plot points (6, 6) and (2, 4). Connect these points to create a composite figure.

c. What is the area of the composite figure? _____

## H.O.T. Problems Higher Order Thinking

9. **MP** **Use Math Tools** Draw a rectangle on a coordinate plane that has a perimeter of 16 units. Label all of the vertices with the coordinates. Then

find the area of the rectangle. _____

_____

10. **MP** **Persevere with Problems** A certain rectangle has a perimeter of 22 units and an area of 30 square units. Two of the vertices have coordinates at (2, 2) and (2, 7). Find the two missing coordinates. Use the coordinate plane to support your answer.

_____

_____
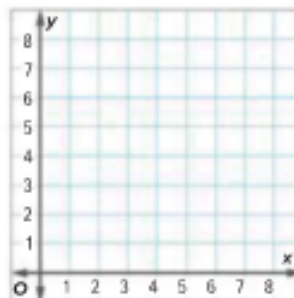
11. **MP** **Identify Structure** Explain the steps you would use to find the perimeter of a rectangle using the coordinates of the vertices.

_____

_____

_____

_____

12. **MP** **Persevere with Problems** Rectangle QRST has vertices Q(3, 2) and S(7, 8).

a. Give two possible coordinates for vertices R and T.

_____

b. Find the perimeter and area of the rectangle.

_____

6th Math Week 2

**Work with a partner to complete the table. The first one is done for you.**

| Irregular Figure | Draw the simpler shapes you can make. | Area of Each Simpler Shape | Estimated Area of Irregular Figure |
|---|---|---|---|
| 8 cm, 3 cm, 4 cm, 12 cm | | $8 \times 3 = 24$ <br> $12 \times 4 = 48$ | 72 square centimeters |
| **11.** 15 in., 6 in, USA, 20 in. | | | |
| **12.** 4 cm, 4 cm, 7 cm, 5 cm, 9 cm | | | |
| **13.** 1 in., 2 in., 1 in., 2 in., 3 in., 6 in. | | | |

**14.** (MP) **Reason Inductively** Heather solves Exercise 11 by subtracting the area of two triangles from the area of a large rectangle and finds the answer 105 square inches. How does Heather's answer compare to your answer for Exercise 11?

_____

_____

### Create
On Your Own

**15.** (MP) **Model with Mathematics** Draw an irregular figure. Write a problem about your figure. Then have a classmate solve the problem.

_____

**16.** (inquiry) HOW can you estimate the area of an irregular figure?

_____

_____

_____

6th Math Week 2

# Area of Composite Figures

## Vocabulary Start-Up

A **composite figure** is a figure made of two or more two-dimensional figures. The composite figure shown to the right is made of two rectangles.

Draw a composite figure made of a rectangle and a right triangle on the graph paper below.

## Real-World Link

**Pools** The dimensions of the city pool are shown.
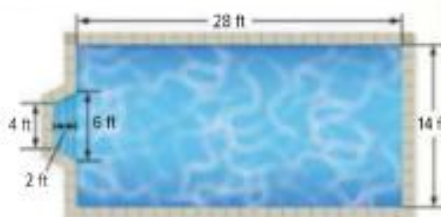
1. What two-dimensional figures are used to make the shape of the pool?

_____

_____

_____

2. How could you determine the area of the pool floor?

_____

_____

_____

_____

Which **MP** **Mathematical Practices** did you use?
Shade the circle(s) that applies.

1. Persevere with Problems
2. Reason Abstractly
3. Construct an Argument
4. Model with Mathematics
5. Use Math Tools
6. Attend to Precision
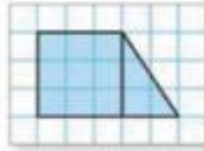7. Make Use of Structure
8. Use Repeated Reasoning

6th Math Week 2

## Find the Area of a Composite Figure

You can decompose some trapezoids into a square and a triangle to find the area.



**Area of Square**

$A = \ell \cdot w$

$A = 3 \cdot 3,\text{ or } 9$

**Area of Triangle**

$A = \frac{1}{2}bh$

$A = \frac{1}{2}(2)(3),\text{ or } 3$

Then add the area of the square and the area of the triangle to find the area of the trapezoid. The area of the trapezoid is $9 + 3$ or 12 square units.

You can find the area of a composite figure using the same strategy. To find the area of a composite figure, separate it into figures with areas you know how to find. Then add those areas.

### Example

1. **Find the area of the figure at the right.**

   The figure can be separated into a rectangle and a triangle. Find the area of each.
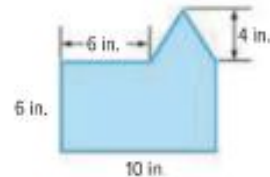
   

   **Area of Rectangle**

   

   **Area of Triangle**
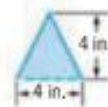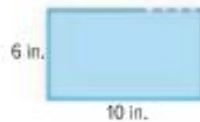
   

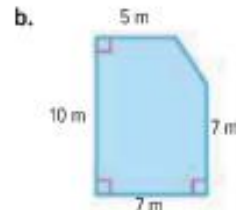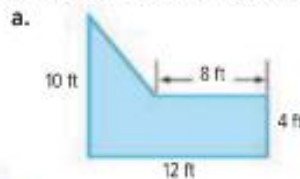   $A = \ell w$              $A = \frac{1}{2}bh$

   $A = 10 \cdot 6$ or 60    $A = \frac{1}{2}(4)(4)$ or 8     The base of the triangle is $10 - 6$ or 4 inches.

   The area is $60 + 8$ or 68 square inches.

### Got it? Do these problems to find out.

Find the area of each figure.

a.


b.


a. _____

b. _____

6th Math Week 2
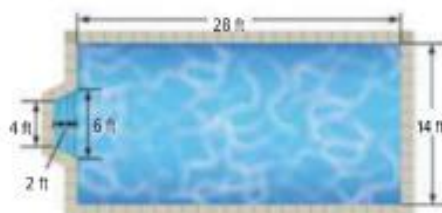
### Example

**2.** Find the area of the pool's floor.

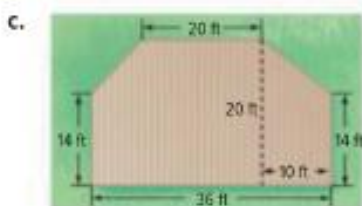Separate the figure into a rectangle and a trapezoid.

Rectangle: 28 × 14 or 392

Trapezoid: $\frac{1}{2}(2)(4 + 6)$ or 10

So, the area of the pool's floor is 392 + 10 or 402 square feet.



**Got it?** Do this problem to find out.

c.



c. _____

# Find the Area of Overlapping Figures

To find the area of overlapping figures, decompose the figures.

### Example

**3.** Find the area of the figure at the right.
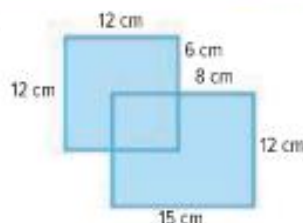
Square: 12 × 12 or 144

Rectangle: 15 × 12 or 180

The sum of the areas: 144 + 180 or 324

Overlapping area: 6 × 7 or 42

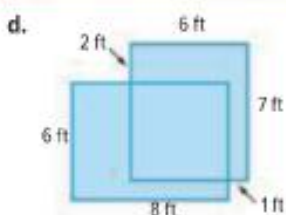Subtract the overlapping area. 324 − 42 = 282

So, the area of the figure is 282 square centimeters.



**Be Precise**

It is important not to count the area of the overlapping portion twice when finding the area of overlapping figures.

**Got it?** Do this problem to find out.

d.



d. _____

6th Math Week 2

## Example

Tutor

4. Charlie and his brother Matthew are neighbors in an apartment complex where they share a patio. What is the area of both apartments and the patio?

Each apartment:
55 × 45 or 2,475

The sum of the areas:
2,475 + 2,475 or 4,950

Patio: 23 × 23 or 529

Subtract the overlapping area. 4,950 − 529 = 4,421
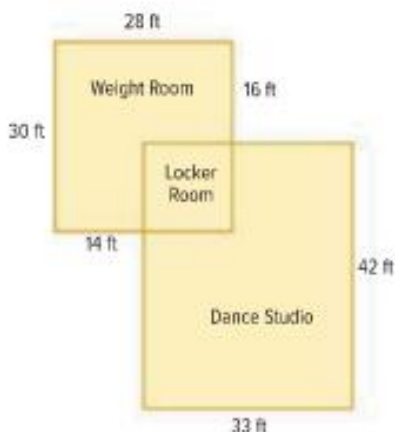
So, the total area is 4,421 square feet.

*(diagram labels: 55 ft, Matthew's Apartment, 22 ft, 45 ft, 32 ft, Charlie's Apartment, 55 ft, 45 ft)*

## Guided Practice

Check ✓

1. The manager of an apartment complex will install new carpeting in a studio apartment. The floor plan is shown at the right. What is the total area that needs to be carpeted? (Examples 1 and 2)

*(diagram labels: 12 ft, 8 ft, 5 ft, 10 ft, 25 ft)*

Show your work

2. Finn Fitness has an entrance to the locker room from both the dance studio and the weight room. What is the total area of Finn Fitness? (Examples 3 and 4)

*(diagram labels: 28 ft, Weight Room, 16 ft, 30 ft, Locker Room, 14 ft, 42 ft, Dance Studio, 33 ft)*

### Rate Yourself!

Are you ready to move on?
Shade the section that applies.

I have a few questions. | I'm ready to move on.
I have a lot of questions.

For more help, go online to access a Personal Tutor.

Tutor

3. **Building on the Essential Question** How can you decompose figures to find area?

6th Math Week 2

## Independent Practice

**Find the area of each figure. Round to the nearest tenth if necessary.** (Example 1)

**1** _____

5.3 in.

8 in.

4 in.

8 in.

Show your work.

**2.** _____

15 cm

7 cm

10 cm
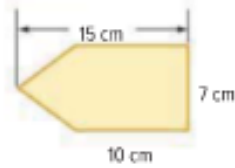
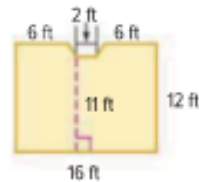**3.** The floor plan of a kitchen is shown at the right. If the entire kitchen floor is to be tiled, how many square feet of tile are needed? (Example 2)

2 ft

6 ft    6 ft

11 ft    12 ft

16 ft

**4.** Ms. Friedman and Mrs. Elliot both teach sixth grade math. They share a storage closet. What is the total area of both rooms and the storage closet? (Examples 3 and 4)
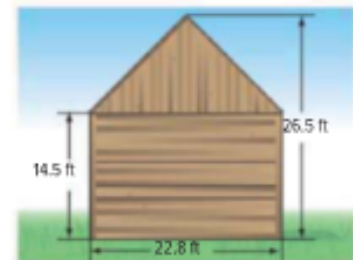
40 ft

Ms. Friedman's Room

36 ft

Storage

34 ft

30 ft

Mrs.Elliot's Room

36 ft

40 ft
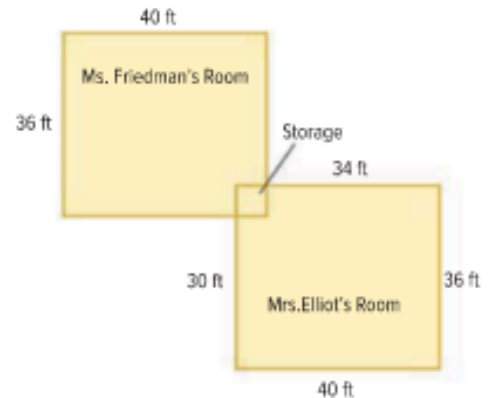
**5** The diagram shows one side of a storage barn.

**a.** This side needs to be painted. Find the total area to be painted. _____

Show your work.

26.5 ft

14.5 ft

22.8 ft

**b.** Each gallon of paint costs $20 and covers 350 square feet. Find the total cost to paint this side once. Justify your answer.

_____

_____

_____

6th Math Week 2

6. **Reason Abstractly** Refer to the graphic novel frame below for Exercises a–b.



We need to find the total area we searched.

a. The first clue was hidden in a triangular section of the park with an area of 600 square feet. The second clue was hidden in a rectangular section with a height of 30 feet and a width of 24 feet. What was the area of the rectangular section? _____
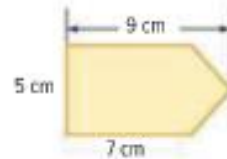
b. What is the total search area? _____

## 🔥 H.O.T. Problems  Higher Order Thinking

7. **Persevere with Problems** Describe how to separate the figure into simpler figures. Then estimate the area. One square unit equals 2,400 square miles. Justify your answer.

_____

_____

_____



NEVADA

8. **Identify Structure** Describe how you would find the area of the figure shown at the right. _____

_____



9 cm
5 cm
7 cm

9. **Make a Conjecture** Refer to the composite figure at the right. Make a conjecture about how the area of the composite figure changes if each dimension given is doubled. Then test your conjecture by doubling the dimensions and finding the area.

_____

_____



5.5 cm
7 cm
16.4 cm

6th Math Week 2
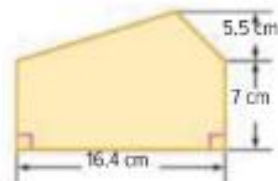
## Solve Two-Step Equations w/ Integer Solutions

# What You Will Learn

You will learn how to solve two-step equations with rational coefficients and integer solutions.

---

# Key Words

coefficient - the number in front of a variable

integer – a positive or negative whole number or 0

rational number - a number that can be written as a fraction of 2 integers

variable – a letter or symbol that represents a number

---

# Buying a Video Game System

You want to buy a new video game system.  It costs $400.

You pay $125, while your parents pay the rest.  You will pay your parents $12.50 per week until you have fully paid them back.

We can make this situation into the equation, $12.5x + 125 = 400$, where $x$ is the number of weeks.

How many weeks will it take you to pay your parents back?
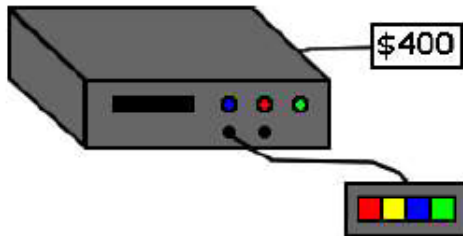
# How to Solve a Two-Step Equation – Part 1

You must first perform an operation to move any values without an $x$ to the other side of the equation.

- If a value is being added to the $x$ term, then subtract the value from both sides.

- If a value is being subtracted from the $x$ term, then add the value to both sides.

Let's try and solve the equation:  $4x - 7 = 13$.

To get $4x$ by itself, we need to move the 7.  Since it is being subtracted from $4x$, we must do the opposite and add 7 to <span style="color:red">BOTH</span> sides of the equation.

$$4x - 7 + 7 = 13 + 7$$

After simplifying, we find that

$$4x = 20.$$

_____

# How to Solve a Two-Step Equation – Part 2

We must now get $x$ by itself. We will perform an operation to remove the coefficient from $x$.

- If the $x$ term is being multiplied by a value, then divide the value from both sides.
- If the $x$ term is being divided by a value, then multiply both sides by the value.

On the previous slide, we began to solve the equation $4x - 7 = 13$.

Adding 7 to both sides, we found that the equation was now $4x = 20$.

Now we can divide BOTH sides of the equation by 4.

$\frac{4x}{4} = \frac{20}{4}$ and simplify to $x = 5$.

$x = 5$ is the solution to the equation $4x - 7 = 13$.

---

What is the value of *n*?

3*n* − 3 = 12

A) 3

B) 5

C) 27

D) 45

---

**Slide 7**

What value of *x* makes the equation below true?

$$10 + \frac{x}{3} = 15$$

A) -15

B) 5

C) 10

D) 15

## Solve Two-Step Equations w/ Integer Solutions

What is the value of $x$?

$4x - 5 = -33$

    A) -8

    B) -7

    C) -6

    D) -4

# What You Learned

You learned how to solve two-step equations with rational coefficients and integer solutions.

Let's use what we have learned to find out how many weeks it will take you to pay back your parents for the new video game system.

We have the following equation that models the situation; $12.5x + 125 = 400$.

Now we can solve for $x$, the number of weeks it will take for you to pay back your parents.

Subtract 125 from both sides.

$12.5x + 125 - 125 = 400 - 125$

$12.5x = 275$

Divide both sides by 12.5.

$$\frac{12.5x}{12.5} = \frac{275}{12.5}$$

$x = 22$ weeks for you to pay your parents back