Objective: REVIEW

Area od Composite Polygons and Coordinate Plane

A **composite** polygon is a polygon that can be divided into simpler figures. To find the area of a composite polygon, find the sum of the areas of the simpler figures. The formulas in the table below will help you find the area of many composite polygon
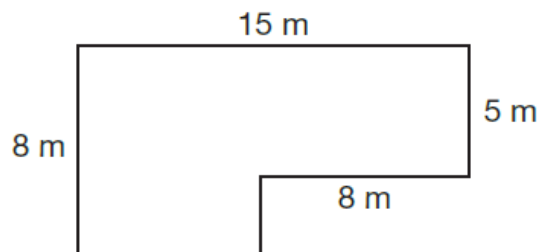
Figure	Area Formula
Rectangle	$A = lw$
Square	$A = s^2$
Triangle	$A = \frac{1}{2}bh$

You can connect points on a **coordinate plane** to form polygons. Remember that you can use absolute value to find the length of a side of a polygon on a coordinate plane.
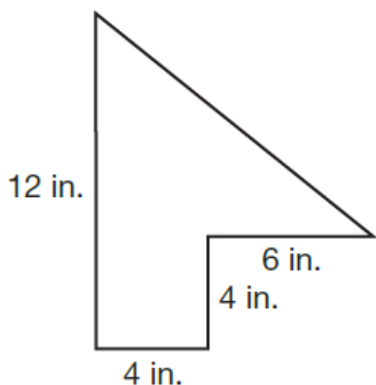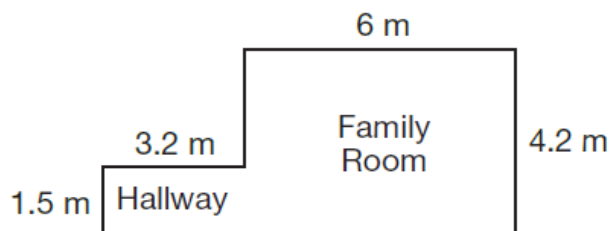
Area of Composite Polygons
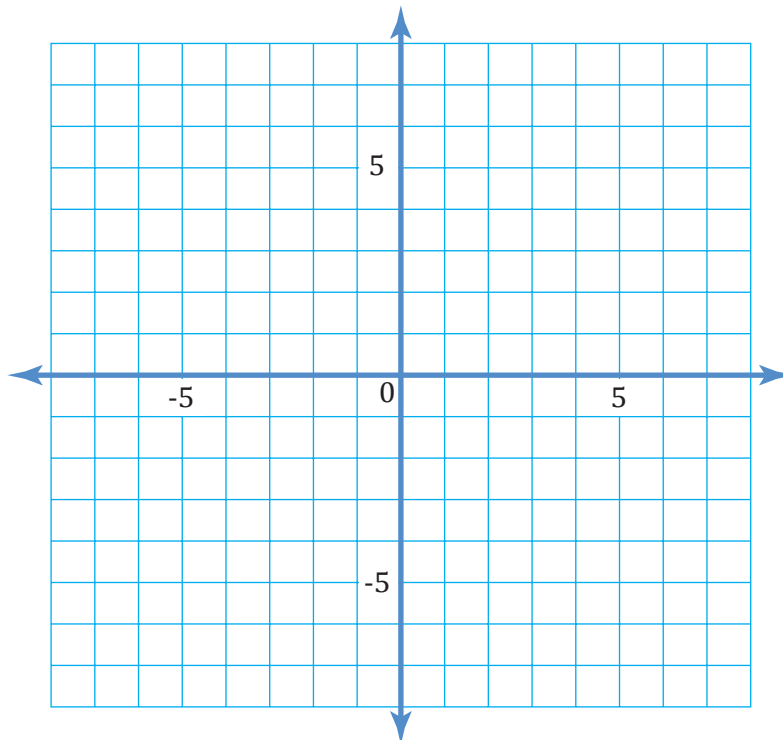
1. What is the area of this figure?

15 m
8 m
5 m
8 m

- **A.** 106 m²
- **B.** 96 m²
- **C.** 56 m²
- **D.** 36 m²

2. What is the area of this figure?

12 in.
6 in.
4 in.
4 in.

- **A.** 52 in.²
- **B.** 56 in.²
- **C.** 76 in.²
- **D.** 96 in.²

3. Mr. Blackburn is buying new carpet for his family room and hallway. The floor plan is shown below.

6 m
3.2 m
Family Room
4.2 m
1.5 m Hallway

How much carpet does he need?

- **A.** 30 m²
- **B.** 27 m²
- **C.** 25.2 m²
- **D.** 14.9 m²

4. What is the area of this figure?

6 cm
20 cm
6 cm
12 cm
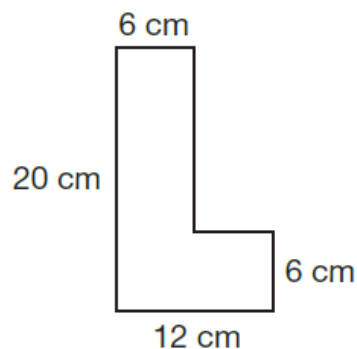
- **A.** 240 cm²
- **B.** 192 cm²
- **C.** 156 cm²
- **D.** 40 cm²

5. What is the area of this figure?

3 in.

3 in. →

2 in.

9 in.
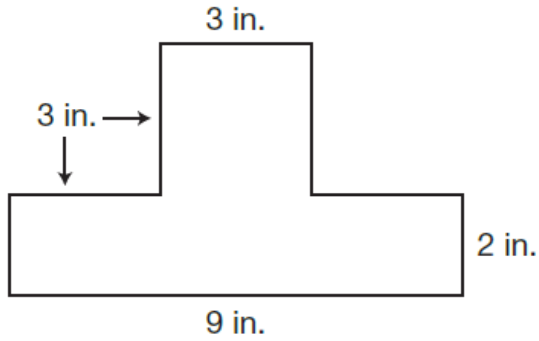
A. 25 in.^{2}
B. 27 in.^{2}
C. 28 in.^{2}
D. 30 in.^{2}

6. What is the area of this figure?

3 cm   3 cm

8 cm

4 cm   4 cm

12 cm
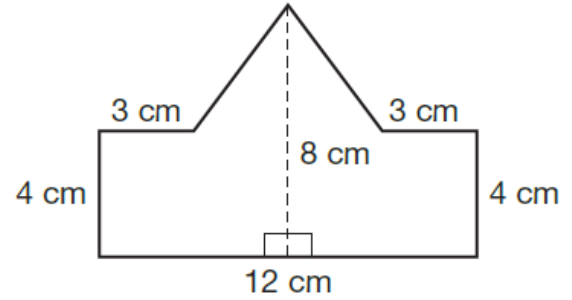
A. 96 cm^2
B. 80 cm^2
C. 72 cm^2
D. 60 cm^2

7. Use this figure to answer the questions below.

7 cm

4 cm

3 cm

4 cm

13 cm
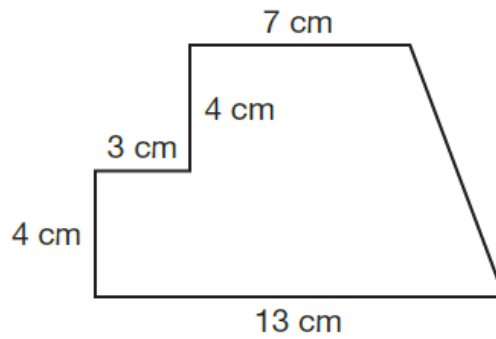
A. What is the area of the figure?

B. Explain how you found your answer to part A.

_____

_____

_____

8. Look at each statement. Is the statement true? Select Yes or No.

		40 in.		

20 in.   20 in.

20 in.

10 in.   10 in.

10 in.   10 in.
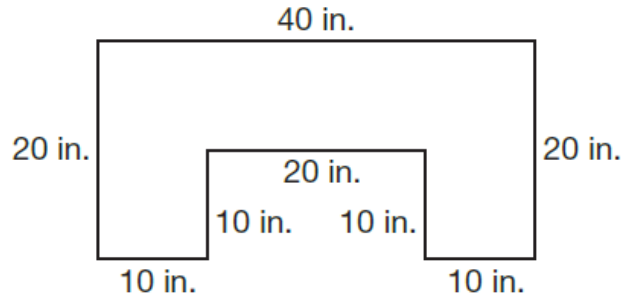
A. The figure can be divided into three rectangles to find the area.   ○ Yes   ○ No

B. The figure can be divided into three congruent rectangles to find the area.   ○ Yes   ○ No

C. The area of the figure can be found by dividing it into two rectangles.   ○ Yes   ○ No

D. The area of the figure is greater than 600 in.^{2} ○ Yes   ○ No

9. This figure can be divided into a large rectangle and a small triangle. Select True or False for each statement.

20 mm

6 mm   10 mm
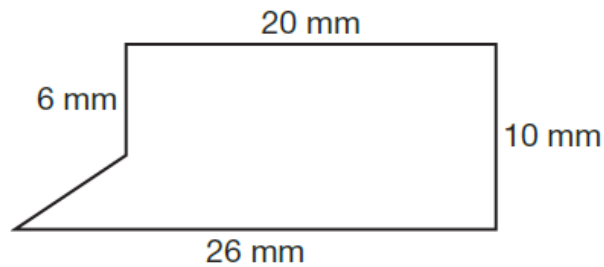
26 mm

A. The dimensions of the rectangle are 20 mm by 26 mm.   ○ True   ○ False
B. The area of the rectangle is 200 mm^2.   ○ True   ○ False
C. The base of the triangle is 6 mm, and the height is 6 mm.   ○ True   ○ False
D. The area of the triangle is 12 mm^2.   ○ True   ○ False
E. The area of the figure is 212 mm^2.   ○ True   ○ False.

Use the coordinate grid for questions 1 and 2.
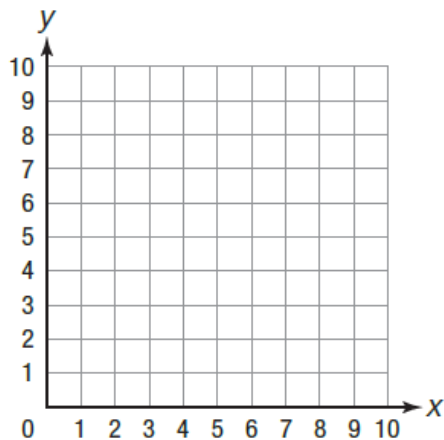
1. Draw and connect the points $(1, 9)$, $(4, 9)$, $(4, 7)$, and $(1, 7)$. Which best describes the kind of geometric figure that is formed?

   A. square

   B. rhombus

   C. rectangle

   D. pentagon

2. Draw and connect the points $(5, 1)$, $(6, 4)$, $(9, 4)$, and $(10, 1)$. Which best describes the kind of geometric figure that is formed?

   A. rhombus

   B. trapezoid

   C. rectangle

   D. hexagon

Use the coordinate grid and the information below for questions 3 and 4.

Debra drew designs for 3 different tables on the grid below.
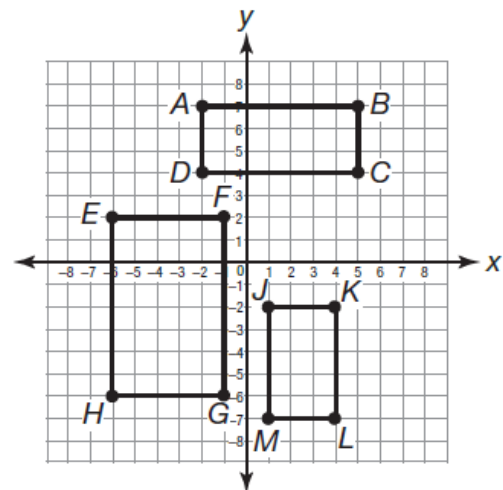
Scale: ⊢ = 1 foot

3. What will be the perimeter of the table represented by figure *EFGH*?

   A. 13 feet

   B. 22 feet

   C. 26 feet

   D. 40 feet

4. How much greater will the area of the table represented by figure *ABCD* be than that of the table represented by figure *JKLM*?

   A. 6 square feet

   B. 19 square feet

   C. 27 square feet

   D. 40 square feet

5. Allan drew a floor plan for a theater's stage on a coordinate plane. He used the points $(-3, 4)$, $(6, 4)$, $(6, -1)$, and $(-3, -1)$.

   A. Plot and connect the points he used on the coordinate plane below.

   Scale: ⊢ = 5 feet
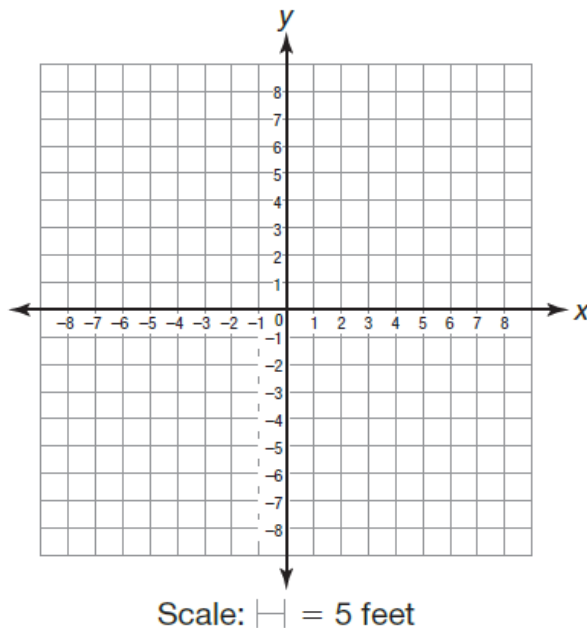
   B. What will be the area of the stage?
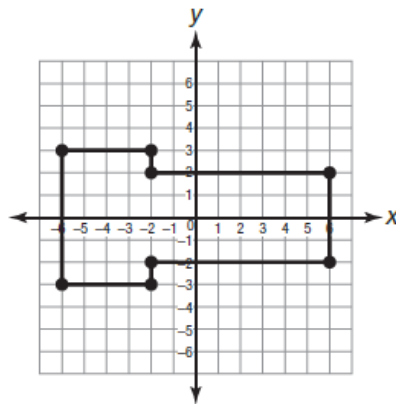
   _____

   C. Explain how you found the area of the stage.

   _____

   _____

   _____

6. The plans for a new warehouse floor are shown below. Divide the figure into two rectangles by drawing a vertical line segment from $(-2, 2)$ to $(-2, -2)$. Label the left rectangle A and the right rectangle B. Select True or False for each statement.

Scale: ⊢ = 5 meters

A. The dimensions of rectangle A are 20 meters by 30 meters.   ○ True   ○ False
B. The area of rectangle A is 600 square meters.   ○ True   ○ False
C. The dimensions of rectangle B are 8 meters by 4 meters.   ○ True   ○ False
D. The area of rectangle B is 32 square meters.   ○ True   ○ False
E. The area of the warehouse floor is 1,400 square meters.   ○ True   ○ False

7. Compare the perimeter of each rectangle to 15 feet. Write the letter of each rectangle in the correct box.

Rectangle A	Rectangle B
$(1, 3), (4, 3), (4, 2), (1, 2)$	$(2, -1), (5, -1), (5, -3), (2, -3)$

Rectangle C	Rectangle D
$(-5, -2), (-2, -2), (-2, -8), (-5, -8)$	$(-6, 7), (-1, 7), (-1, 2), (-6, 2)$

Perimeter < 15 ft	Perimeter > 15 ft
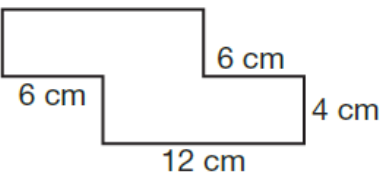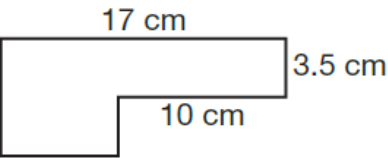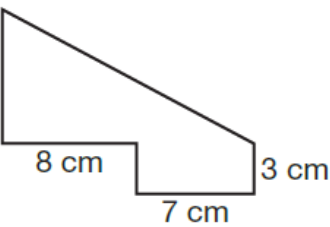
Objective

Draw a line from each composite polygon to its area.

A.

1 cm

4 cm | 6 cm

18 cm

•   • 81 cm^2

B.

4 cm

6 cm | 6 cm

12 cm | 4 cm

•   • 84 cm^2

C. 7 cm

17 cm

3.5 cm

10 cm

•   • 96 cm^2

D.

8 cm

8 cm | 3 cm

7 cm

•   • 54 cm^2

Draw a line from each set of points to the area and perimeter of the geometric figure that the points form when they are connected.

A. $(2, 6), (6, 6), (6, 2), (2, 2)$ •   • $A = 15$ square units, $P = 16$ units

B. $(1, -3), (6, -3), (6, -6), (1, -6)$ •   • $A = 4$ square units, $P = 10$ units

C. $(-5, -2), (-3, -2), (-3, -4), (-5, -4)$ •   • $A = 16$ square units, $P = 16$ units

D. $(-6, 4), (-2, 4), (-2, 3), (-6, 3)$ •   • $A = 4$ square units, $P = 8$ units