ALBERT

Name _____ Date _____

Polygons on the Coordinate Plane Worksheet

Grade 6 · Common Core 6.G.A.3

> Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

Practice

Builds the skill step by step.

1. A rectangle has vertices (1, 1), (6, 1), (6, 4) and (1, 4). How long is the side from (1, 1) to (6, 1)?

2. For the rectangle in problem 1, how long is the side from (6, 1) to (6, 4)?

3. What is the area of the rectangle in problem 1?

4. Which point would make a rectangle with (2, 2), (2, 7) and (5, 7)?

   A. (2, 5)

   B. (5, 2)

   C. (7, 5)

   D. (5, 5)

5. Find the length of the side from (−3, 2) to (4, 2).

6. Find the length of the side from $(0, -5)$ to $(0, 3)$.

7. A square has vertices $(0, 0)$, $(4, 0)$, $(4, 4)$ and $(0, 4)$. What is its perimeter?

8. What kind of polygon has vertices $(1, 1)$, $(5, 1)$ and $(1, 6)$?

   A. A rectangle

   B. A right triangle

   C. A square

   D. A trapezoid

9. What is the area of the triangle in problem 8?

10. Find the perimeter of the rectangle with vertices $(-2, -1)$, $(3, -1)$, $(3, 2)$ and $(-2, 2)$.

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On Level

Grade-level practice.

1. A rectangle has vertices $(-4, -3)$, $(2, -3)$, $(2, 5)$ and $(-4, 5)$. Find its area.

2. A triangle has vertices $(-2, -2)$, $(4, -2)$ and $(1, 3)$. Find its area.

3. Three vertices of a square are $(-1, 1)$, $(3, 1)$ and $(3, -3)$. What is the fourth?

   A. $(-3, 1)$

   B. $(1, -3)$

   C. $(-1, 3)$

   D. $(-1, -3)$

4. A garden on a map grid has corners (0, 0), (8, 0), (8, 5) and (0, 5). Each unit is 2 meters. What is the garden's area in square meters?

5. A parallelogram has vertices (0, 0), (6, 0), (8, 4) and (2, 4). Find its area.

6. A trapezoid has vertices (1, 1), (9, 1), (7, 5) and (3, 5). Find its area.

7. A rectangle has vertices $(-5, 2)$, $(1, 2)$, $(1, -2)$ and $(-5, -2)$. What is its perimeter?

   A. 24 units

   B. 10 units

   C. 12 units

   D. 20 units

8. Point $(2, 7)$ is one corner of a square with side length 5. Another corner is to the right on the same horizontal line. Give its coordinates.

9. Find the area of the triangle with vertices $(-3, 0)$, $(3, 0)$ and $(0, -4)$.

10. A rectangle has vertices $(-6, -1)$, $(-1, -1)$, $(-1, 3)$ and $(-6, 3)$. Find its area.

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Challenge

Multi-step and word problems that stretch it.

1. An L-shaped figure has vertices (0, 0), (6, 0), (6, 2), (2, 2), (2, 5) and (0, 5). Find its area.

2. A rectangle has vertices (−3, −2), (5, −2), (5, y) and (−3, y), with y above −2. Its area is 40 square units. What is y?

3. A triangle has vertices (0, 0), (8, 0) and (x, 6). Which value of x does NOT change its area?

   A. Only x = 4

   B. Only x = 0

   C. Only x = 8

   D. Any value of x

4. A park on a grid has corners (−4, −4), (4, −4), (4, 2) and (−4, 2). Each unit is 10 yards. A path runs along the whole edge. How long is the path in yards?

5. Draw the pentagon with vertices (0, 0), (4, 0), (4, 3), (2, 5) and (0, 3). Find its area.

6. Ben says the distance from $(-5, 1)$ to $(3, 1)$ is 2 units. What mistake did he make, and what is the correct length?

7. A square has one side from $(-2, -1)$ to $(-2, 5)$. It extends to the left. Give the other two vertices.

8. A rectangle on a grid has a perimeter of 30 units. Two of its vertices are $(1, 2)$ and $(10, 2)$. Find the other two vertices if the rectangle extends upward.

9. Find the area of the triangle with vertices $(-1, -2)$, $(5, -2)$ and $(5, 6)$.

10. A floor plan has a room with corners $(0, 0)$, $(12, 0)$, $(12, 9)$ and $(0, 9)$, where each unit is 1 foot. Carpet costs \$4 per square foot. How much does carpet for the room cost?