LESSON MAKER PRO

Coordinate Rectangle Quest

Use coordinate differences to find side lengths, perimeter, and area.

GRADE 6 · MA.6.GR.1.3

MA.6.GR.1.3 "Solve mathematical and real-world problems by plotting points on a coordinate plane, including finding the perimeter or area of a rectangle."

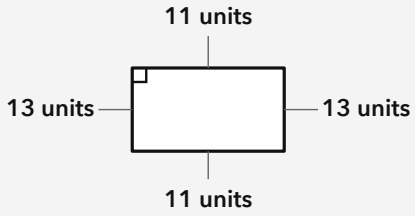
NAME _____ **DATE** _____

FIND THE SIDE LENGTHS

For a rectangle with sides parallel to the axes, subtract the smaller x-coordinate from the larger x-coordinate to find a horizontal side length. Subtract the smaller y-coordinate from the larger y-coordinate to find a vertical side length. Use positive side lengths to find perimeter by adding all sides and area by multiplying length times width.

WORKED EXAMPLE

Find the perimeter and area of the rectangle shown.



1. The side lengths are 11 units and 13 units.
2. Perimeter = 11 + 13 + 11 + 13 = 48 units.
3. Area = 11 times 13 = 143 square units.

Answer: Perimeter = 48 units; area = 143 square units.

PRACTICE 6 problems

1 Rectangle ABCD has vertices A(-5, 2), B(-5, 8), C(1, 8), and D(1, 2). What is its area?

ANSWER _____

2 Rectangle EFGH has vertices E(-3, -4), F(-3, 1), G(5, 1), and H(5, -4). What is its perimeter?

ANSWER _____

3 Rectangle JKLM has vertices J(-2, 6), K(4, 6), L(4, 9), and M(-2, 9). What are the horizontal and vertical side lengths?

ANSWER _____

_____

4 Three vertices of rectangle EFGH are E(-6, 5), F(2, 5), and G(2, -2). What are the coordinates of H?

ANSWER _____

5 Rectangle JKLM has vertices J(-6, -4), K(3, -4), L(3, 1), and M(-6, 1). Find its perimeter and area.

ANSWER _____

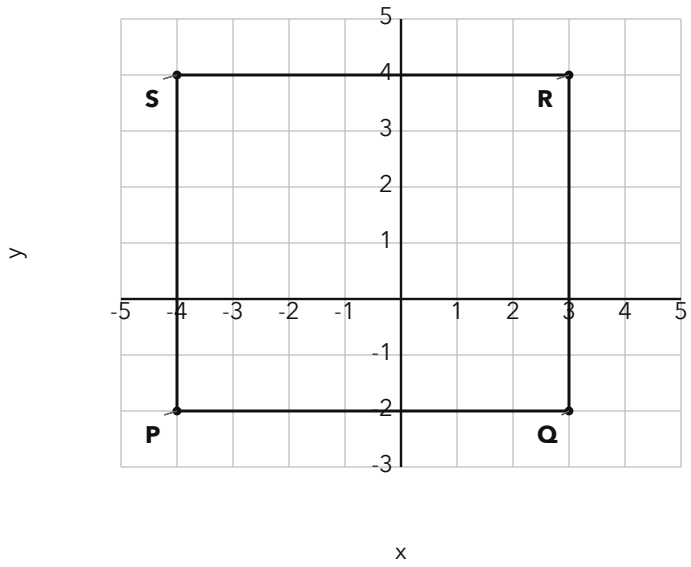
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6 The opposite corners of a rectangle are V(-4, -2) and X(3, 5). Its sides are parallel to the axes. What is its area?

ANSWER _____

APPLY IT Show your work

1 The art club uses the coordinate grid to plan a rectangular mural. The grid shows the four corners of the mural. What are the mural's perimeter and area?



ANSWER _____

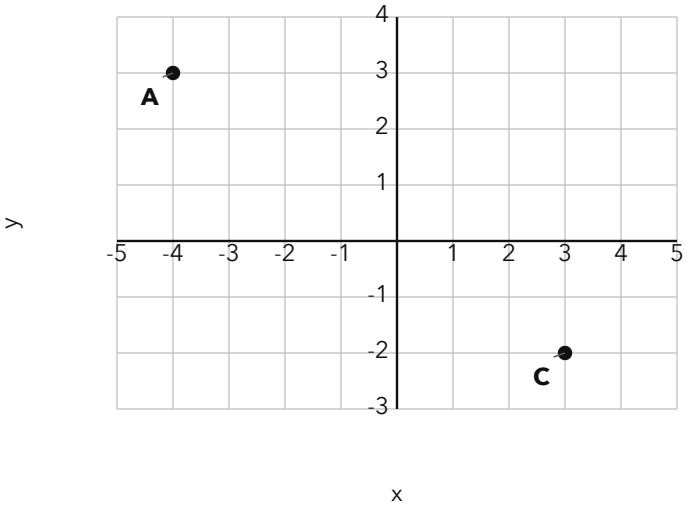
2 A robotics team marks a rectangular charging zone on a coordinate-plane blueprint. Three corners are T(-4, -3), U(2, -3), and V(2, 4). The sides are parallel to the axes. What is the fourth corner, and what is the perimeter of the zone?

WORK SPACE

ANSWER _____

CHALLENGE One step up

On the grid, A and C are opposite corners of a rectangle whose sides are parallel to the axes. Plot the other two corners. Then find the area and explain how the coordinates show the side lengths.



WORK SPACE AND ANSWER

ANSWER KEY

Coordinate Rectangle Quest

GRADE 6 · MA.6.GR.1.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Rectangle ABCD has vertices A(-5, 2), B(-5, 8), C(1, 8), and D(1, 2). What is its area?	**36 square units**
2	Rectangle EFGH has vertices E(-3, -4), F(-3, 1), G(5, 1), and H(5, -4). What is its perimeter?	**26 units**
3	Rectangle JKLM has vertices J(-2, 6), K(4, 6), L(4, 9), and M(-2, 9). What are the horizontal and vertical side lengths?	**Horizontal side length: 6 units; vertical side length: 3 units**
4	Three vertices of rectangle EFGH are E(-6, 5), F(2, 5), and G(2, -2). What are the coordinates of H?	**(-6, -2)**
5	Rectangle JKLM has vertices J(-6, -4), K(3, -4), L(3, 1), and M(-6, 1). Find its perimeter and area.	**Perimeter: 28 units; area: 45 square units**
6	The opposite corners of a rectangle are V(-4, -2) and X(3, 5). Its sides are parallel to the axes. What is its area?	**49 square units**

PART 2 · APPLY IT

1. **Perimeter: 26 units; area: 42 square units** The horizontal side is 3 - (-4) = 7 units, and the vertical side is 4 - (-2) = 6 units. Add the side lengths for perimeter and multiply them for area.
2. **Fourth corner: (-4, 4); perimeter: 26 units** The missing corner uses the x-coordinate from T and the y-coordinate from V, so it is (-4, 4). The side lengths are 6 units and 7 units, so the perimeter is 26 units.

CHALLENGE

Other corners: (-4, -2) and (3, 3). Area: 35 square units. The horizontal side is 3 - (-4) = 7 units, and the vertical side is 3 - (-2) = 5 units.

Accept equivalent correct coordinate notation and units. For the challenge, accept either order for the two missing corners and any clear explanation using positive coordinate differences.