

Coordinate Plane (Quadrant I)

Geometry · Grade 5

Score: _____ / 10

★ Hard · 10 Questions

Solve each problem. Show your work in the space provided. Write your answer on the line.

1. Find the distance between (1, 2) and (4, 6).

(Use the distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$)

Answer: _____

2. A triangle has vertices A(0,0), B(6,0), C(3,4).

Find the perimeter.

Answer: _____

3. Three points $A(1,2)$, $B(4,6)$, $C(7,2)$ form a triangle.
Is it isosceles? Show using distance.

Answer: _____

4. The vertices of a parallelogram are $A(0,0)$, $B(4,0)$, $C(5,3)$.
Find the fourth vertex D .

Answer: _____

5. Find the area of a rectangle with corners at $(0,0)$, $(8,0)$, $(8,5)$, $(0,5)$.

Answer: _____

6. Find the perimeter of the rectangle with corners $(1,1)$, $(7,1)$, $(7,5)$, $(1,5)$.

Answer: _____

7. Find the midpoint of the segment from $(3, -2)$ to $(9, 6)$.

Answer: _____

8. A square has corners at $(1,1)$, $(5,1)$, $(5,5)$. Find the fourth corner and the area.

Answer: _____

9. Reflect the point $(-3, 4)$ across the y -axis, then across the x -axis.

Answer: _____

10. A triangle has vertices $(0,0)$, $(8,0)$, $(0,6)$. Find the area.

Answer: _____

Answer Key

Coordinate Plane (Quadrant I) — Hard

1. 5 units

$$d = \sqrt{[(4-1)^2 + (6-2)^2]} = \sqrt{[9+16]} = \sqrt{25} = 5.$$

2. 16 units

$$AB = 6. AC = \sqrt{(3^2 + 4^2)} = \sqrt{25} = 5. BC = \sqrt{[(6-3)^2 + (0-4)^2]} = \sqrt{25} = 5. \text{ Perimeter} = 6 + 5 + 5 = 16.$$

3. Yes. $AB = \sqrt{(9+16)} = 5$. $BC = \sqrt{(9+16)} = 5$. $AC = 6$. $AB = BC$, so isosceles.

$$AB = \sqrt{[(4-1)^2 + (6-2)^2]} = \sqrt{25} = 5. BC = \sqrt{[(7-4)^2 + (2-6)^2]} = \sqrt{25} = 5. AC = 6. \text{ Two sides equal} \rightarrow \text{isosceles}.$$

4. D = (1, 3)

In a parallelogram, diagonals bisect each other. Midpoint of AC = (2.5, 1.5) = midpoint of BD. D = (2×2.5−4, 2×1.5−0) = (1, 3).

5. 40 sq units

$$\text{Width} = 8, \text{ height} = 5. \text{ Area} = 8 \times 5 = 40.$$

6. 20 units

$$\text{Width} = 6, \text{ height} = 4. \text{ Perimeter} = 2(6+4) = 20.$$

7. (6, 2)

$$\text{Midpoint} = ((3+9)/2, (-2+6)/2) = (6, 2).$$

8. (1, 5); Area = 16 sq units

$$\text{Fourth corner: } (1, 5). \text{ Side} = 4. \text{ Area} = 16.$$

9. (3, −4)

$$\text{Across } y\text{-axis: } (-3, 4) \rightarrow (3, 4). \text{ Across } x\text{-axis: } (3, 4) \rightarrow (3, -4).$$

10. 24 sq units

$$\text{Right triangle: } \frac{1}{2} \times 8 \times 6 = 24 \text{ sq units}.$$