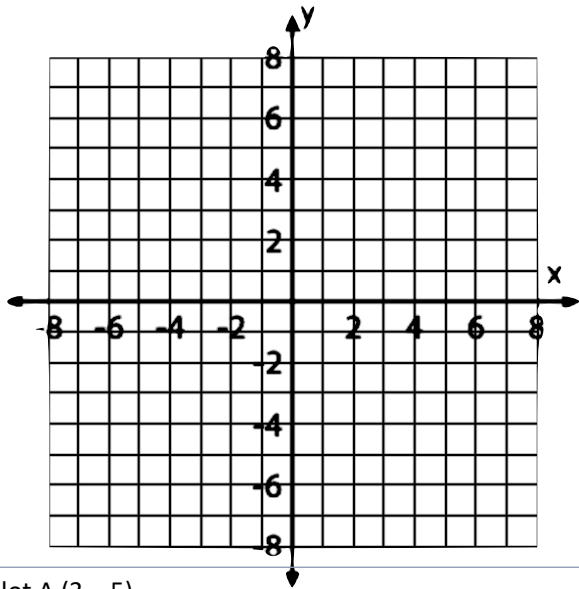


Group A — Plotting Points & Quadrants

Plot points 1–5 on the grid below. Then, in each box, state the quadrant (or say “on an axis”).



1. Plot A (3, -5). Quadrant: _____
2. Plot B (-2, 4). Quadrant: _____
3. Plot C (-6, -1). Quadrant: _____
4. Plot D(0, 7). Quadrant (or axis): _____
5. Plot E(5, 5). Quadrant: _____
6. Without plotting: name the quadrant for (-8, 3). Quadrant: _____
7. Most data (points) have meaning. If an equation $h = 10 + 12t + 4.9t^2$ calculates the HEIGHT, h , of an object at TIME, t . The the ordered pair would be (t, h) . In what quadrant would the graph of $h(t)$ be graphed? Why?

Name: _____

Date: _____ Period: _____

Group B — The Distance Formula

Find the distance between each pair of points. Simplify each radical completely; round to two decimals only if the radical doesn't simplify.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

8. (1, 2) and (4, 6)
9. (-3, 1) and (2, -1)
10. (0, 0) and (-5, 12)
11. (-2, -3) and (4, 5)

Group C — The Midpoint Formula

Find the midpoint of the segment joining each pair of points.

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

12. (2, 3) and (8, 7)
13. (−4, 6) and (2, −2)
14. (5, −9) and (−1, 3)
15. (−7, −2) and (7, 10)

Group D — Mixed Applications

Show your work. Use the Distance Formula, the Midpoint Formula, or both, as needed.

16. Points A(1, 1), B(4, 1), and C(4, 5) form a triangle. Find AB, BC, and AC. Then use the converse of the Pythagorean Theorem to show the triangle is a right triangle.
17. A company had sales of \$8.2 million in 2019 and \$11.6 million in 2023. Assuming a linear trend, use the Midpoint Formula to estimate the sales in 2021.
18. A park's two entrances are located at (2, 3) and (14, 8) on a map, where 1 unit = 100 meters. Find the straight-line distance between the entrances, in meters.