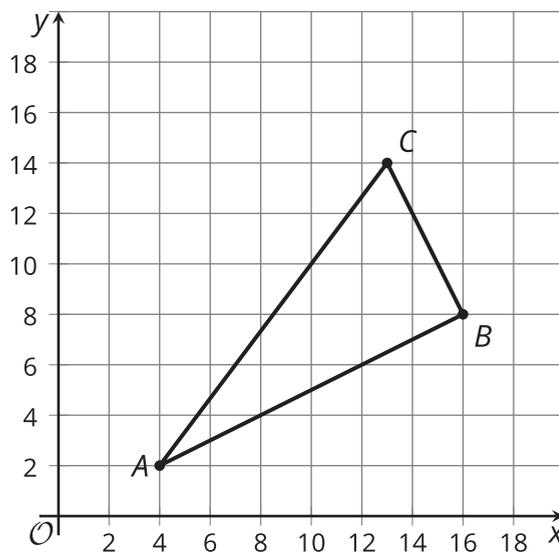


## Lesson 15 Practice Problems

- Consider the parallelogram with vertices at  $(0, 0)$ ,  $(4, 0)$ ,  $(2, 3)$ , and  $(6, 3)$ . Where do the diagonals of this parallelogram intersect?
  - $(3, 1.5)$
  - $(4, 2)$
  - $(2, 4)$
  - $(3.5, 3)$
- What is the midpoint of the line segment with endpoints  $(1, -2)$  and  $(9, 8)$ ?
  - $(3, 5)$
  - $(4, 3)$
  - $(5, 3)$
  - $(5, 5)$
- Graph the image of triangle  $ABC$  under a dilation with center  $A$  and scale factor  $\frac{2}{3}$ .



4. A quadrilateral has vertices  $A = (0, 0)$ ,  $B = (2, 4)$ ,  $C = (0, 5)$ , and  $D = (-2, 1)$ . Prove that  $ABCD$  is a rectangle.

(From Unit 6, Lesson 14.)

5. A quadrilateral has vertices  $A = (0, 0)$ ,  $B = (1, 3)$ ,  $C = (0, 4)$ , and  $D = (-1, 1)$ . Select the most precise classification for quadrilateral  $ABCD$ .

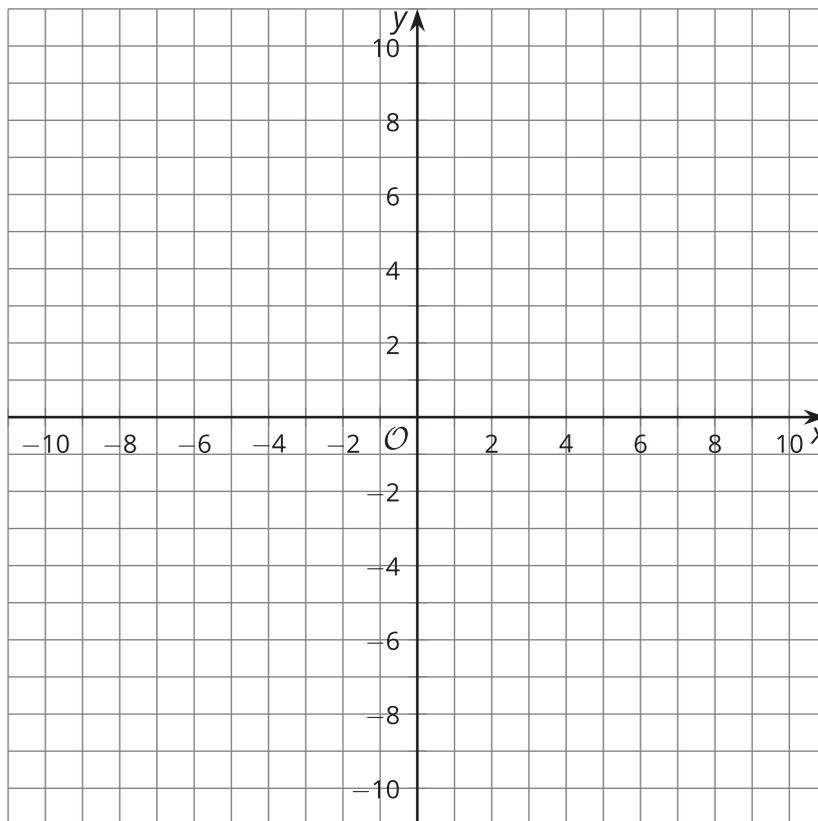
- A. quadrilateral
- B. parallelogram
- C. rectangle
- D. square

(From Unit 6, Lesson 14.)

6. Write an equation whose graph is a line perpendicular to the graph of  $x = -7$  and which passes through the point  $(-7, 1)$ .

(From Unit 6, Lesson 12.)

7. Graph the equations  $(x + 1)^2 + (y - 1)^2 = 64$  and  $y = 1$ . Where do they intersect?



(From Unit 6, Lesson 13.)

8. A parabola has a focus of  $(2, 5)$  and a directrix of  $y = 1$ . Decide whether each point on the list is on this parabola. Explain your reasoning.

a.  $(-1, 5)$

b.  $(2, 3)$

c.  $(6, 6)$

(From Unit 6, Lesson 7.)