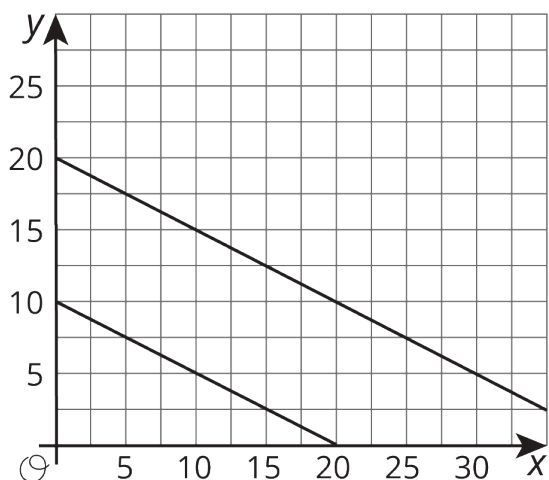# Unit 3 Lesson 11: Equations of All Kinds of Lines

1 Which One Doesn't Belong: Pairs of Lines (Warm up)
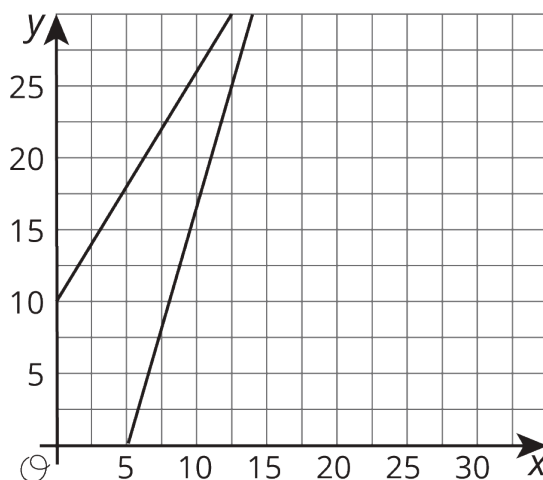
Student Task Statement

Which one doesn't belong?
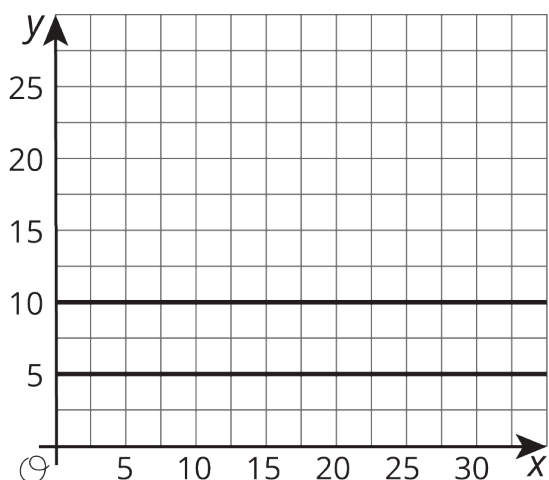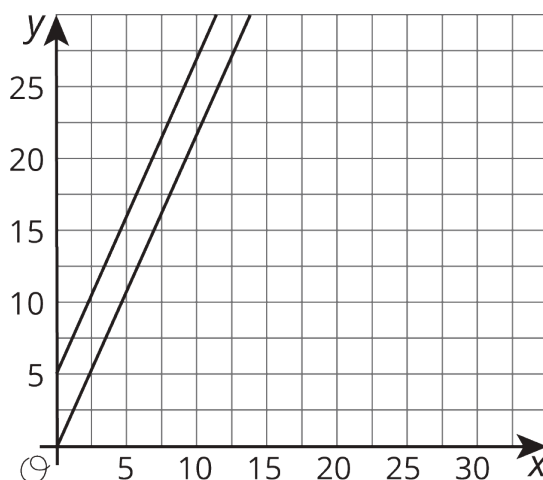
A

B

C

D

2 All the Same

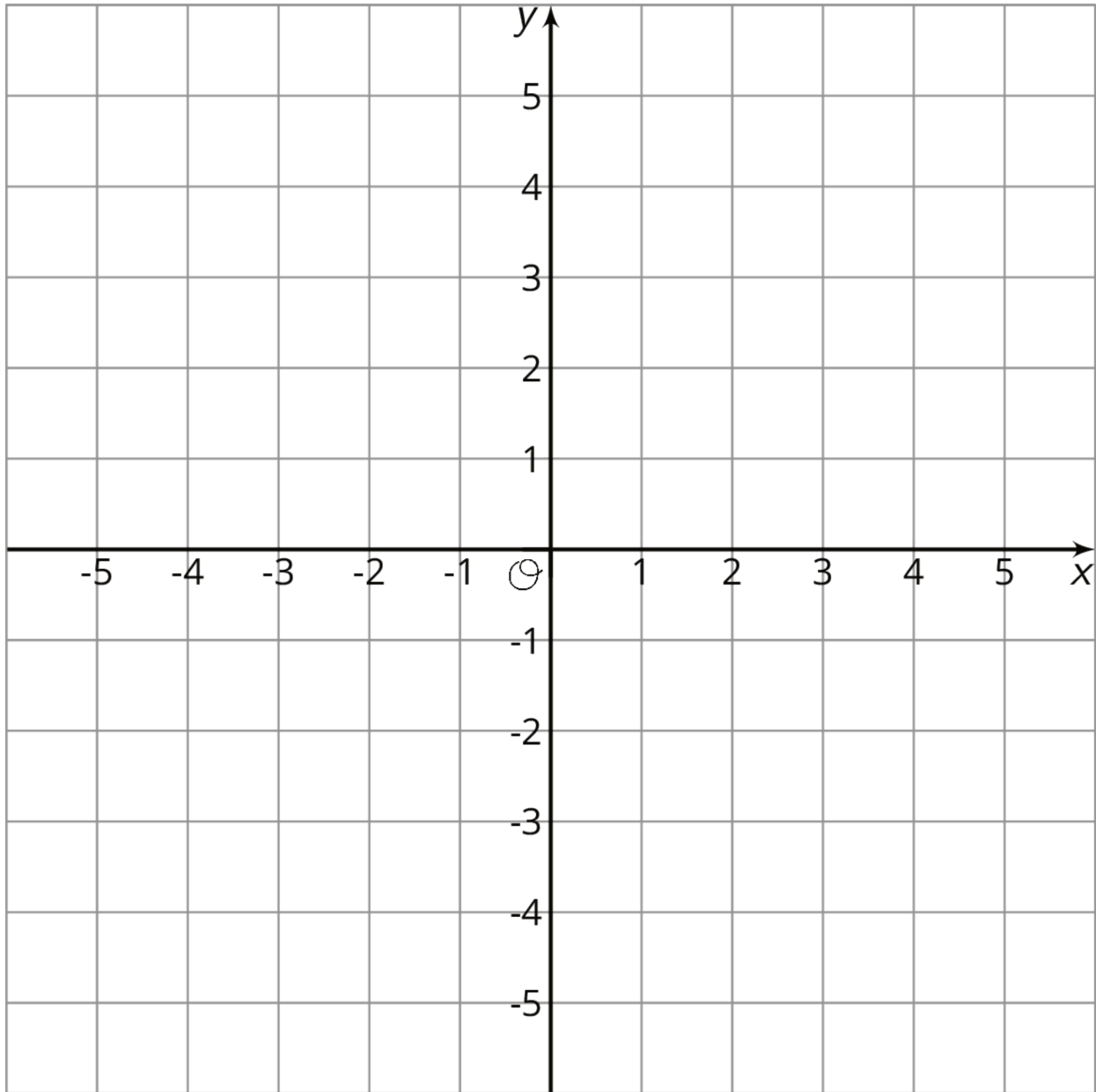**Student Task Statement**

1. Plot at least 10 points whose y-coordinate is -4. What do you notice about them?

2. Which equation makes the most sense to represent all of the points with y-coordinate -4? Explain how you know.

   $x = -4$ $\qquad\qquad$ $y = -4x$ $\qquad\qquad$ $y = -4$ $\qquad\qquad$ $x + y = -4$

3. Plot at least 10 points whose x-coordinate is 3. What do you notice about them?

4. Which equation makes the most sense to represent all of the points with x-coordinate 3? Explain how you know.

$x = 3$ $\qquad$ $y = 3x$ $\qquad$ $y = 3$ $\qquad$ $x + y = 3$

5. Graph the equation $x = -2$.

6. Graph the equation $y = 5$.

3 Same Perimeter

Student Task Statement

1. There are many possible rectangles whose perimeter is 50 units. Complete the table with lengths, ℓ, and widths, w, of at least 10 such rectangles.

ℓ									
w									

2. The graph shows one rectangle whose perimeter is 50 units, and has its lower left vertex at the origin and two sides on the axes.

On the same graph, draw more rectangles with perimeter 50 units using the values from your table. Make sure that each rectangle has a lower left vertex at the origin and two sides on the axes.
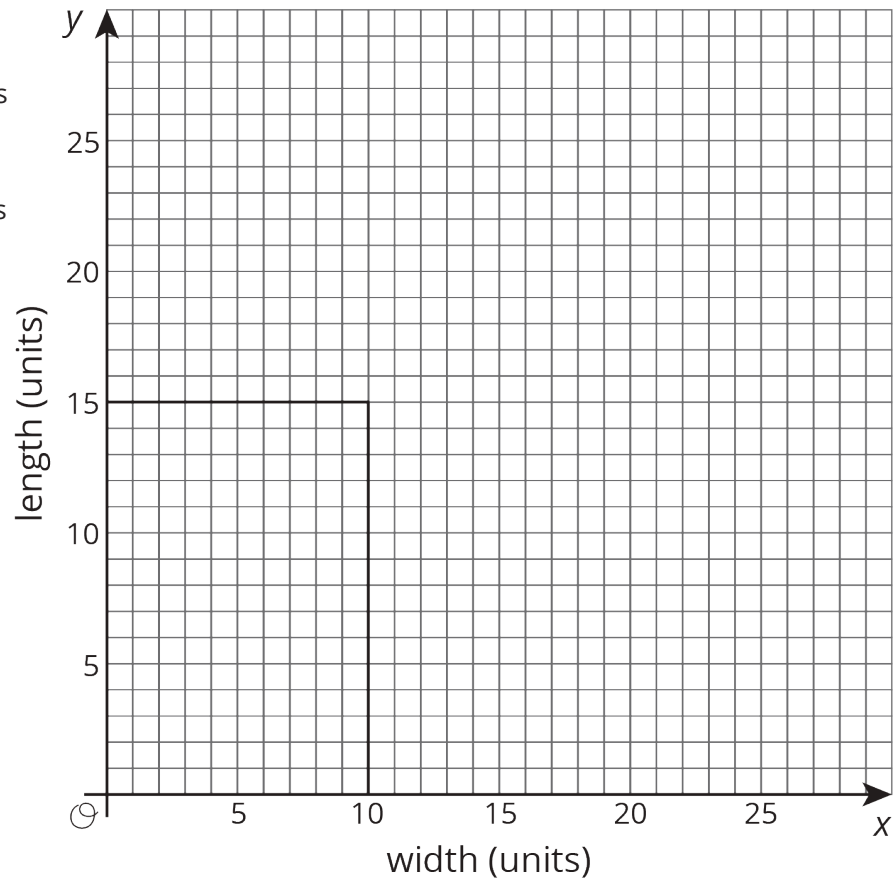
3. Each rectangle has a vertex that lies in the first quadrant. These vertices lie on a line. Draw in this line and write an equation for it.

4. What is the the slope of this line? How does the slope describe how the width changes as the length changes (or vice versa)?