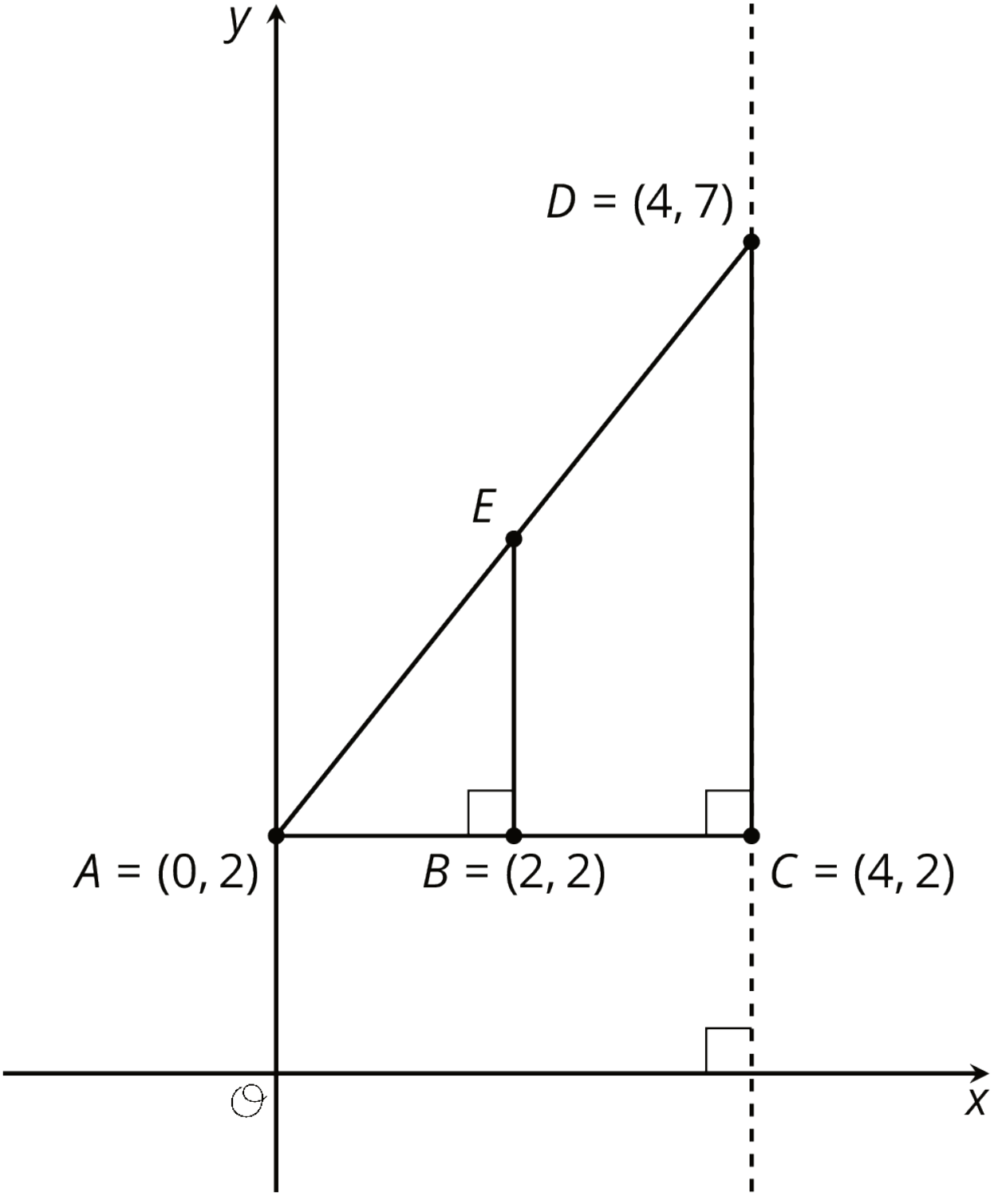
Unit 2 Lesson 11: Writing Equations for Lines

1 Coordinates and Lengths in the Coordinate Plane (Warm up)

Student Task Statement



Find each of the following and explain your reasoning:

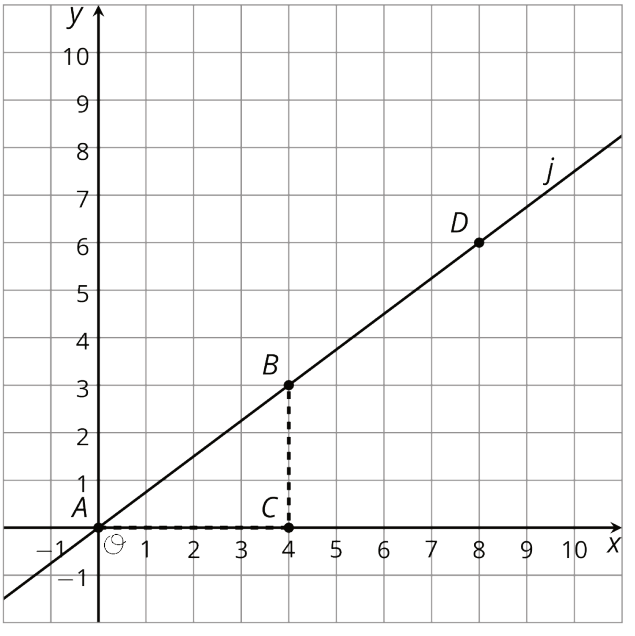
1. The length of segment BE.
2. The coordinates of E.

2 What We Mean by an Equation of a Line

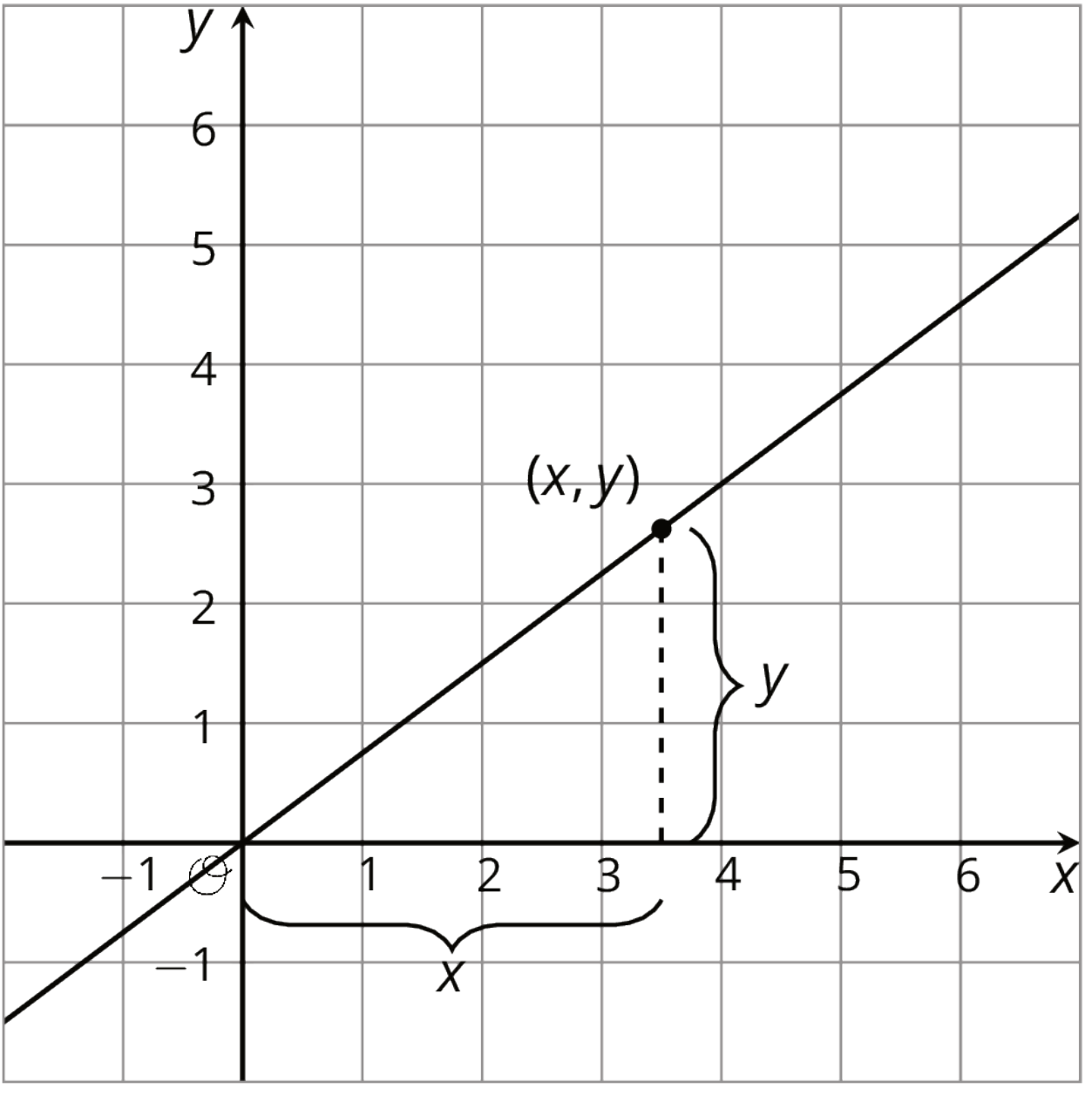
Student Task Statement

Line j is shown in the coordinate plane.

1. What are the coordinates of B and D?
2. Is point $(20, 15)$ on line j? Explain how you know.
3. Is point $(100, 75)$ on line j? Explain how you know.
4. Is point $(90, 68)$ on line j? Explain how you know.
5. Suppose you know the x- and y-coordinates of a point. Write a rule that would allow you to test whether the point is on line j.



Activity Synthesis

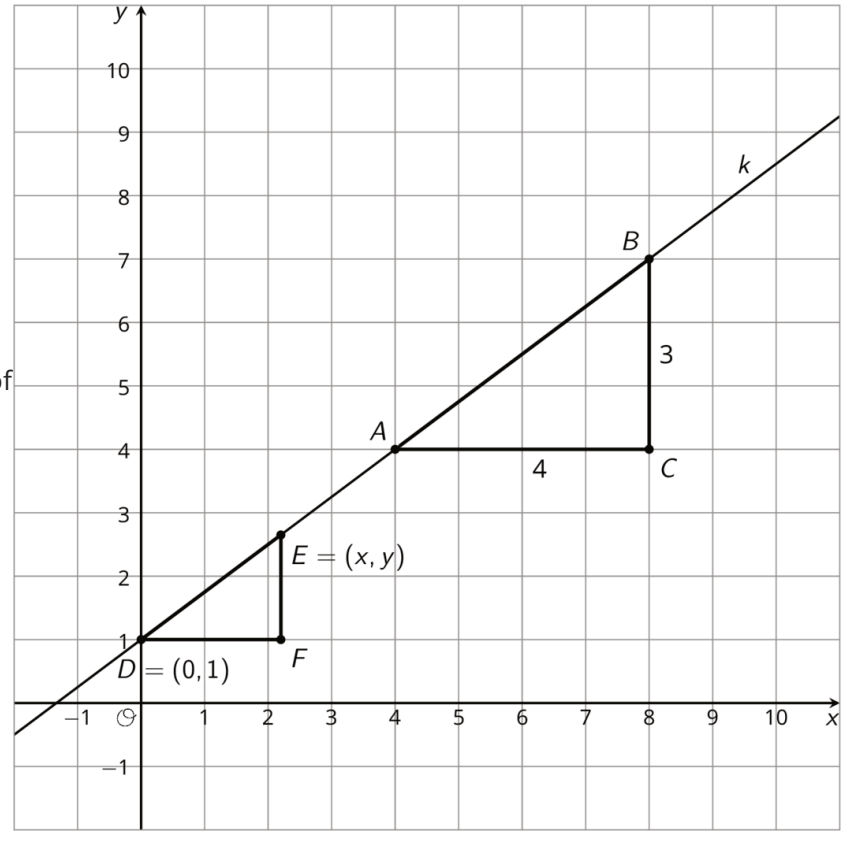


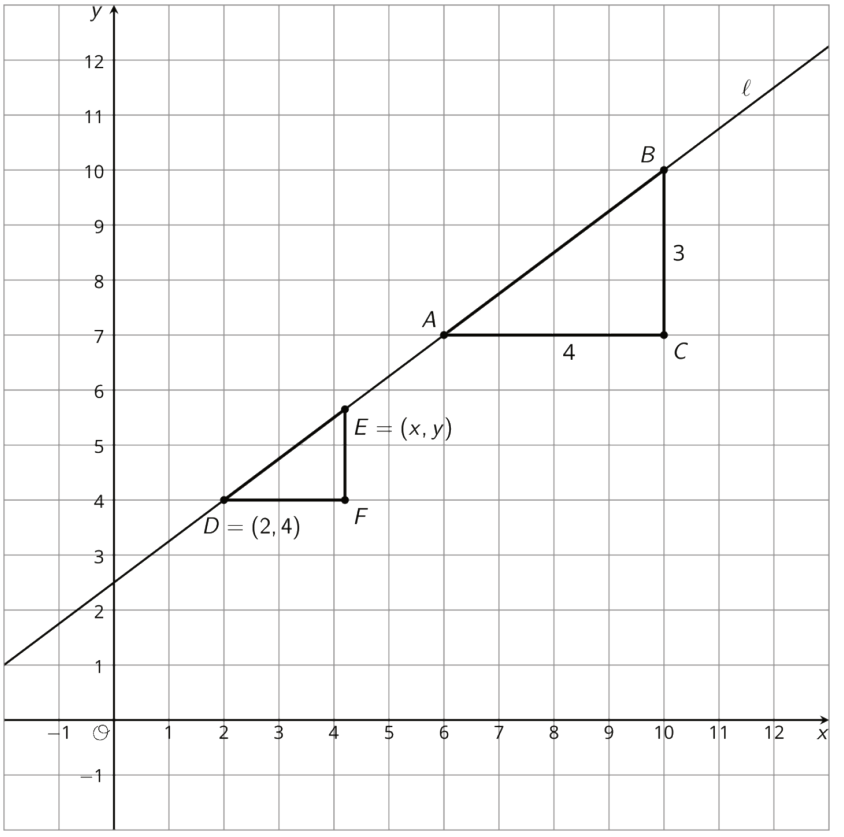
3 Writing Relationships from Slope Triangles

Student Task Statement

Here are two diagrams:

1. Complete each diagram so that all vertical and horizontal segments have expressions for their lengths.
2. Use what you know about similar triangles to find an equation for the quotient of the vertical and horizontal side lengths of $\triangle DFE$ in each diagram.




y
x
O
ℓ
A
B
C
D = (2,4)
E = (x, y)
F
3
4

Images for Activity Synthesis