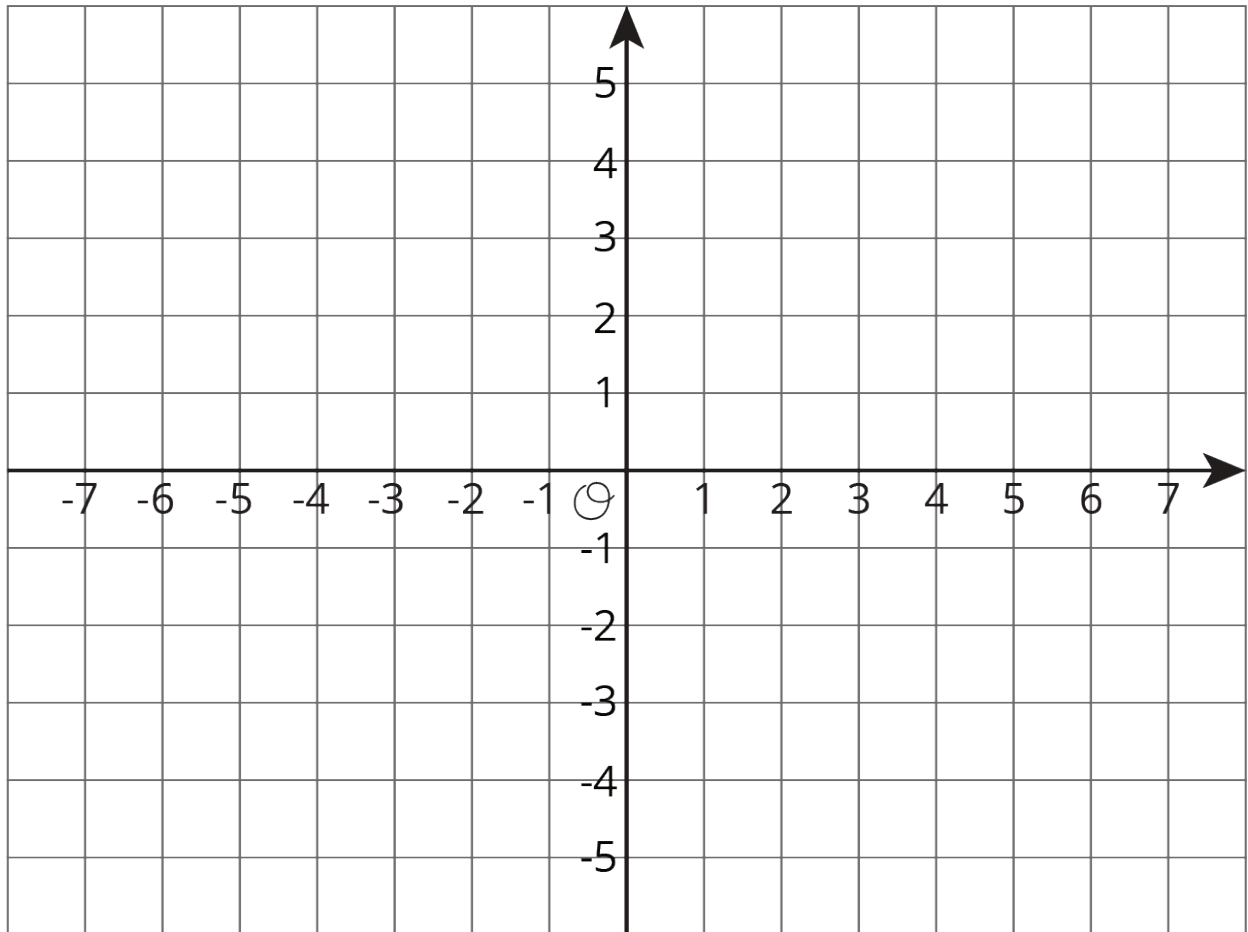# Unit 7 Lesson 14: Distances on a Coordinate Plane

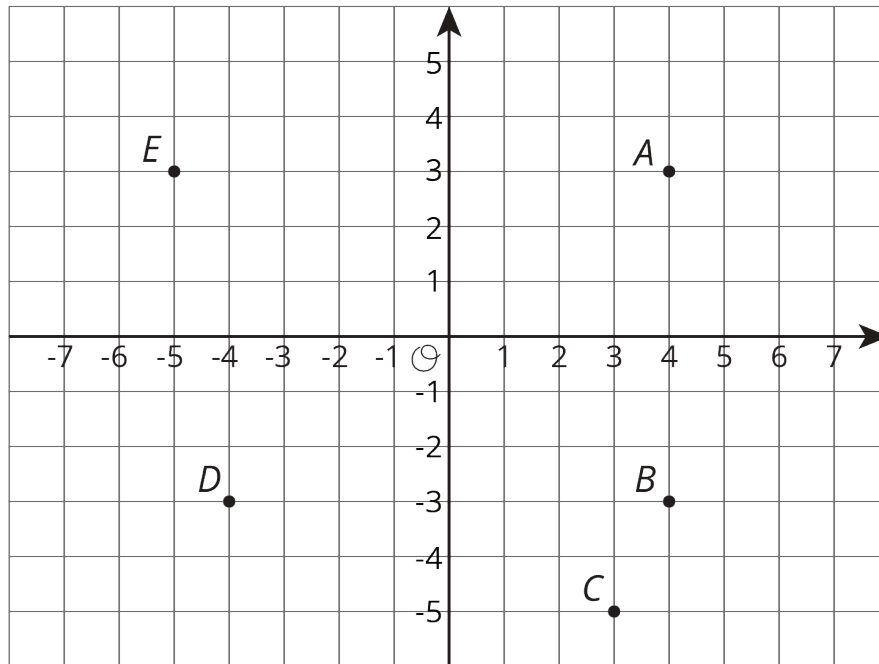## 1 Coordinate Patterns (Warm up)

Student Task Statement

Plot points in your assigned quadrant and label them with their coordinates.

2 Signs of Numbers in Coordinates

Student Task Statement

1. Write the coordinates of each point.

$A =$

$B =$

$C =$

$D =$

$E =$

2. Answer these questions for each pair of points.

- How are the coordinates the same? How are they different?
- How far away are they from the y-axis? To the left or to the right of it?
- How far away are they from the x-axis? Above or below it?

a. A and B

b. B and D

c. A and D

Pause here for a class discussion.

3. Point F has the same coordinates as point C, except its y-coordinate has the opposite sign.

    a. Plot point F on the coordinate plane and label it with its coordinates.

    b. How far away are F and C from the x-axis?

    c. What is the distance between F and C?

4. Point G has the same coordinates as point E, except its x-coordinate has the opposite sign.

    a. Plot point G on the coordinate plane and label it with its coordinates.

    b. How far away are G and E from the y-axis?

    c. What is the distance between G and E?

5. Point H has the same coordinates as point B, except its *both* coordinates have the opposite sign. In which quadrant is point H?

3 Finding Distances on a Coordinate Plane

Student Task Statement

1. Label each point with its coordinates.
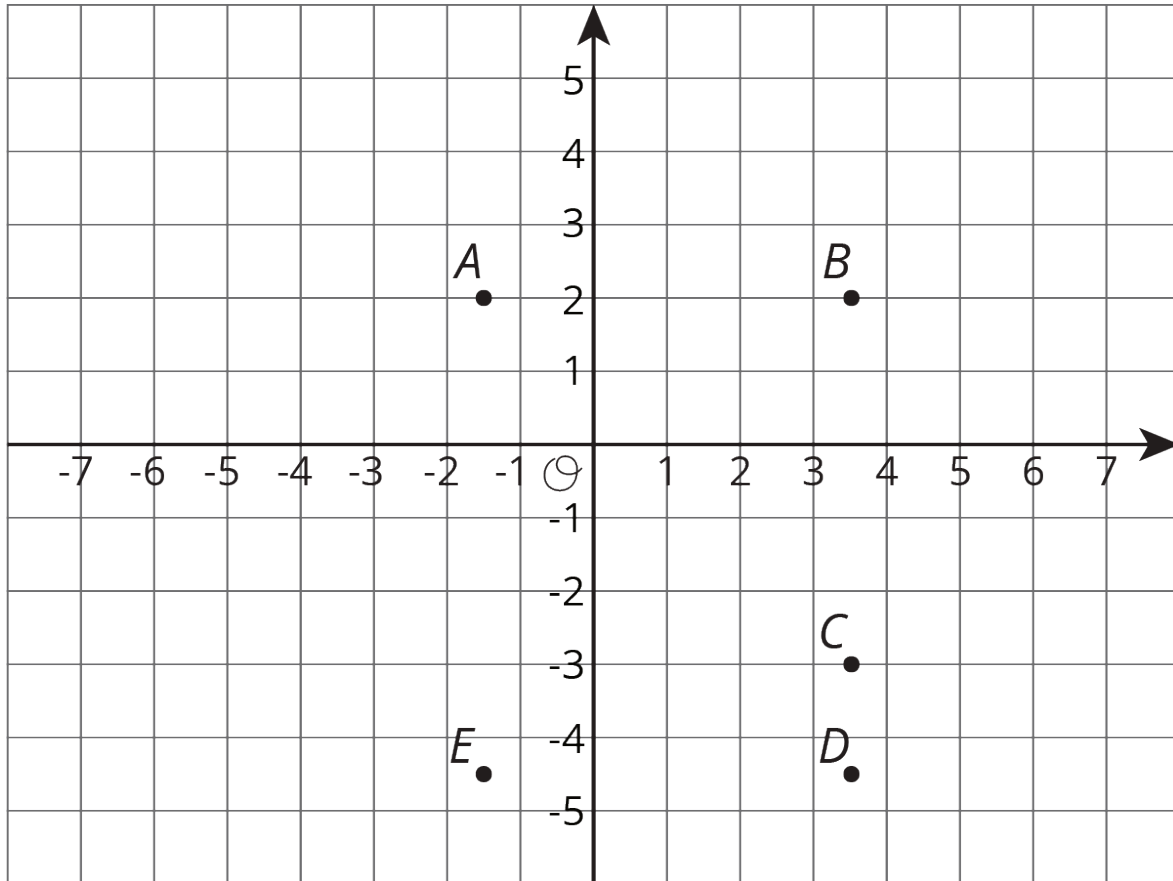
2. Find the distance between each of the following pairs of points.

   a. Point B and C

   b. Point D and B

   c. Point D and E

3. Which of the points are 5 units from (-1.5, -3)?

4. Which of the points are 2 units from (0.5, -4.5)?

5. Plot a point that is both 2.5 units from A and 9 units from E. Label that point M and write down its coordinates.