

Name \_\_\_\_\_

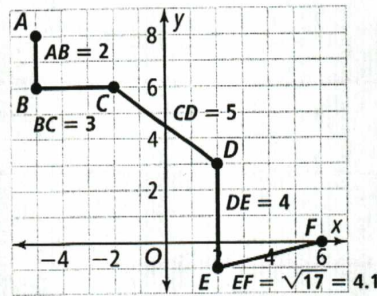
# 1-3 Reteach to Build Understanding

## Midpoint and Distance

- Find the length of each segment in the path shown. What is the total distance?

**Example:**  $E(2, -1)$  and  $F(6, 0)$ . The distance  $d$  from point  $E$  to point  $F$  is calculated with the Distance Formula.

$$\begin{aligned} d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(6 - 2)^2 + (0 - (-1))^2} \\ &= \sqrt{(4)^2 + (1)^2} \\ &= \sqrt{16 + 1} \\ &= \sqrt{17} \approx 4.123 \end{aligned}$$



- Find the midpoint of each segment in Exercise 1 above.

**Example:** The midpoint  $M$  between point  $E$  and point  $F$  is calculated with the Midpoint Formula.

$$M: \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) = \left( \frac{6 + 2}{2}, \frac{0 + (-1)}{2} \right) = \left( \frac{8}{2}, \frac{-1}{2} \right) = \left( 4, \frac{-1}{2} \right)$$

$\overline{AB}$ : (\_\_\_\_\_)

$\overline{BC}$ : (\_\_\_\_\_)

$\overline{CD}$ : (\_\_\_\_\_)

$\overline{DE}$ : (\_\_\_\_\_)

$\overline{EF}$ : (\_\_\_\_\_)

- Cameron calculated the distance between point  $C$  and point  $D$  below. Is the distance correct? If not, what is her mistake?

$$\begin{aligned} d &= \sqrt{((-2) + 2)^2 + (6 + 3)^2} \\ &= \sqrt{(0)^2 + (9)^2} \\ &= 9 \end{aligned}$$