

1. Determine the midpoint of the segment with endpoints $(-10, -11)$ and $(8, -17)$.

X_1 Y_1 X_2 Y_2

$$\frac{X_1 + X_2}{2}, \frac{Y_1 + Y_2}{2}$$

$$\frac{-10 + 8}{2}, \frac{-11 + (-17)}{2} = \frac{-2}{2}, \frac{-28}{2}$$

$$(-1, -14)$$

$$(-10, -11) \quad (-1, -14)$$

$$d = \sqrt{(X_2 - X_1)^2 + (Y_2 - Y_1)^2}$$

$$d = \sqrt{(-1 - (-10))^2 + (-14 - (-11))^2}$$

$$d = \sqrt{(9)^2 + (-3)^2}$$

$$d = \sqrt{81 + 9}$$

$$d = \sqrt{90}$$

$$= \sqrt{9 \cdot 10}$$

$$= \sqrt{9} \cdot \sqrt{10}$$

$$d = 3\sqrt{10}$$

90	90
1	90
2	45
3	30
5	18
9	10

$$(-1, -14)(8, -17)$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(8 - (-1))^2 + (-17 - (-14))^2}$$

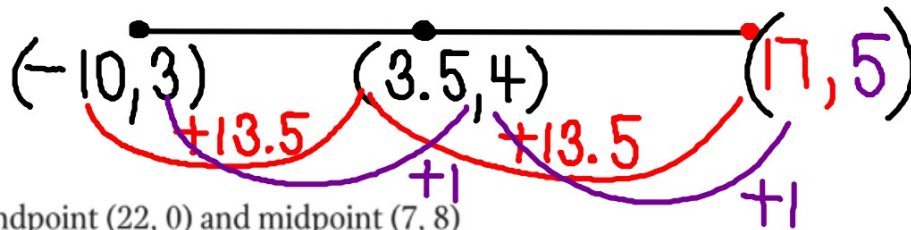
$$d = \sqrt{(9)^2 + (-3)^2}$$

$$d = \sqrt{81 + 9}$$

$$d = \sqrt{90}$$

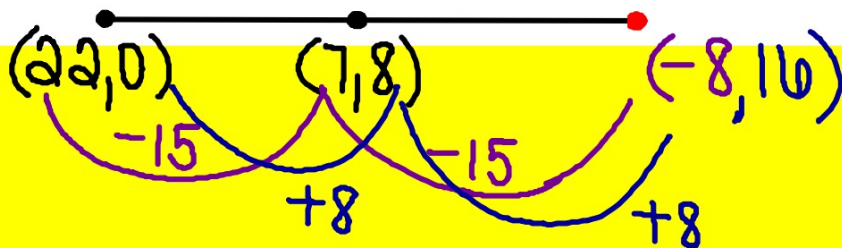
For problems 4 and 5, find the coordinates of the second endpoint given one endpoint and the midpoint of the segment.

4. endpoint $(-10, 3)$ and midpoint $(3.5, 4)$



$(17, 5)$

5. endpoint $(22, 0)$ and midpoint $(7, 8)$



$(-8, 16)$