Example 3

Find the length of $\overline{PQ}$ if P(3, - 5) and Q (- 8, - 2)

$$PQ = \sqrt{(3+8)^2 + (-2+5)^2}$$

$$\sqrt{11^2 + 3^2} = \sqrt{121+9} = \sqrt{130}$$

$$\approx 11.4$$

To find the midpoint of a segment with endpoints (x_1, y_1) & (x_2, y_2) use the Midpoint Formula:

$$M\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

Example 4

Find the midpoint of $\overline{XY}$ when X(8, 9) and Y(- 6, - 3)

$$M\left(\frac{8+-6}{2}, \frac{9+-3}{2}\right) = \left(\frac{2}{2}, \frac{6}{2}\right)$$

$$(1, 3)$$

Example 5

Find the midpoint of the segment with endpoints L(-5, 4) and N(10, -3)

$$M\left(\frac{-5+10}{2}, \frac{4+-3}{2}\right) = \left(\frac{5}{2}, \frac{1}{2}\right)$$

Best way to leave ← , → (no decimal, improper fraction)