Length of a line

The length of a line is the square root of the difference in X coordinates squared minus the difference in Y coordinates squared.

\[ \sqrt{(X_1 - X_2)^2 - (Y_1 - Y_2)^2} \]

e.g. \( \sqrt{(2 - 6)^2 - (3 - 2)^2} \)

\[ \sqrt{(-4)^2 - 1^2} \]

\[ = \sqrt{16 - 1} \]

\[ = \sqrt{15} \]

\[ = 3.8729 \ldots \]

\[ = 3.87 \]

Mid-point

The midpoint is found by adding the X coordinates and dividing by 2 and adding the Y coordinates and dividing by 2.

\[ \left( \frac{X_1 + X_2}{2}, \frac{Y_1 + Y_2}{2} \right) \]

\[ \frac{2 + 6}{2}, \frac{3 + 2}{2} = (4, 2.5) \]