

1) To prove that line segments/sides of a shape, such as square and rhombus are congruent, prove that the lengths are equal.

- USE DISTANCE FORMULA

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

2) To prove line segments/diagonals bisect each other, prove that the midpoints are the same.

- USE MIDPOINT FORMULA

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

3) To prove lines are parallel, prove that the slopes are equal.

- USE SLOPE FORMULA

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

4) To prove that lines are perpendicular, prove that the slopes are negative reciprocals.

- The products of the slopes should be -1 .