

<u>Parallelogram</u>		<u>Rectangle</u>		<u>Rhombus</u>		<u>Square</u>		<u>Trapezoid</u>	
Sides	Diagonals	Sides	Diagonals	Sides	Diagonals	Sides	Diagonals	Trapezoid	Isosceles Trapezoid
1) Both sets of opposite sides are parallel. Slope of all 4 sides. OR 2) Both sets of opposites are congruent. – Distance	Prove diagonals bisect each other. Must have same midpoint.	1) Slope of all 4 sides. Should find – opposite sides are parallel and adjacent sides are perpendicular.	1) Bisect – same midpoint 2) Congruent – equal distance	1) Distance formula for all 4 sides to prove all are congruent.	1) Bisect each other – same midpoint 2) Perpendicular – negative reciprocal slope	1) All sides have same distance – equal in length 2) Slope – 1 set of adjacent sides are perpendicular	1) Bisect – have same midpoint. 2) Slope to show they are perpendicular 3) Distance to prove they are congruent	1) Slope all 4 sides. 1 set of opposite sides is parallel and the other is not.	1) Prove it is a trapezoid 2) Prove 2 non-parallel sides are congruent with distance formula Or Prove diagonals are equal with distance formula.

Slope

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

Midpoint

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

Distance

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