


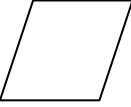
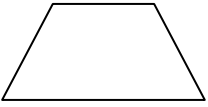


## Classifying Quadrilaterals on a Coordinate Plane

Task: Given four coordinates on the coordinate plane, classify the quadrilateral as a square, rectangle, parallelogram, rhombus, trapezoid, or none of the above.

If you know the coordinates of the vertices of a quadrilateral, you can determine the length and slopes of the sides and use the information to classify the quadrilateral as a rectangle, a square, a parallelogram, a rhombus or a trapezoid.

Shape & Sketch	Characteristics	Proof/Calculations
 Square	<ul style="list-style-type: none"> <li>- All 4 sides have equal length</li> <li>- All 4 sides are right angles</li> <li>- Opposite sides are parallel</li> <li>- Intersecting sides are perpendicular to each other</li> </ul>	<ul style="list-style-type: none"> <li>• Find lengths and slopes of all sides.</li> <li>• Lengths of all sides are the same.</li> <li>• Slopes of intersecting sides are negative reciprocals.</li> </ul>
 Rectangle	<ul style="list-style-type: none"> <li>- Opposite sides are equal in length</li> <li>- Opposite sides are parallel</li> <li>- Intersecting sides are perpendicular to each other</li> </ul>	<ul style="list-style-type: none"> <li>• Find slopes of all sides.</li> <li>• Slopes of opposite sides are the same.</li> <li>• Slopes intersecting sides are negative reciprocals.</li> </ul>
 Parallelogram	<ul style="list-style-type: none"> <li>- Opposite sides are parallel</li> <li>- Opposite sides are the same length</li> <li>- Intersecting sides are <b>NOT</b> perpendicular to each other</li> </ul>	<ul style="list-style-type: none"> <li>• Find slopes of all sides.</li> <li>• Slopes of opposite sides are the same.</li> <li>• Slopes are <b>NOT</b> negative reciprocals of each other</li> </ul>
 Rhombus	<ul style="list-style-type: none"> <li>- A parallelogram in which the length of all 4 sides are equal</li> </ul>	<ul style="list-style-type: none"> <li>• Find slopes and lengths of all sides.</li> <li>• Lengths of all sides are the same.</li> <li>• Slopes of intersecting sides are <b>NOT</b> negative reciprocals.</li> </ul>
 Trapezoid	<ul style="list-style-type: none"> <li>- 1 Pair of parallel sides</li> </ul>	<ul style="list-style-type: none"> <li>• Find slopes of all sides.</li> <li>• If two sides have the same slopes and the other two slopes are different from each other, then the quadrilateral is a trapezoid.</li> </ul>