

**Honors Geometry  
Coordinate Proofs 2**

**Proving a Quadrilateral is a Rhombus in the Coordinate Plane**

**Proving a Quadrilateral is a Rhombus (need to show one of the below is true)**

1. All sides are congruent
2. Show the quadrilateral is a parallelogram and the diagonals are perpendicular.

**Let's try a couple!**

1. Show quadrilateral KLMN with vertices K (2, 5), L (-2, 3), M (2, 1), and N (6, 3) is a rhombus.
2. Show quadrilateral ABCD with vertices A (-2, 5), B (1, 8), C (4, 5), and D (1, 2) is a rhombus.

**Homework:**

1. Show quadrilateral ABCD with vertices A (-3, -4), B (5, -3), C (1, 4), and D (-7, 3) is a rhombus.
2. Show quadrilateral PQRS with vertices P (5, 1), Q (9, 6), R (5, 11), and S (1, 6) is a rhombus.
3. Show quadrilateral EFGH with vertices E (5, -1), F (11, -3), G (5, -5), and H (-1, -3) is a rhombus.
4. Show quadrilateral TASH with vertices T (3, 2), A (7, 0), S (11, 2), and H (7, 4) is a rhombus.

**Proving a Quadrilateral is a Square in the Coordinate Plane**

**Proving a Quadrilateral is a Square (need to show one of the below is true)**

<b><i>Must show it is a rectangle &amp; a rhombus. Thus, show one from each column</i></b>	
<p><u>Proving a Rhombus</u></p> <ol style="list-style-type: none"> <li>1. Diagonals are perpendicular.</li> <li>2. All sides are congruent.</li> </ol>	<p><u>Proving a Rectangle</u></p> <ol style="list-style-type: none"> <li>1. All angles are right angles</li> <li>2. Show it is a parallelogram first. Then show the diagonals are congruent.</li> <li>3. Show it is a parallelogram first. Then show one angle is a right angle.</li> </ol>

**Let's do these together:**

1. Show the quadrilateral A (4, 1), B (1, 5), C (-3, 2), and D (0, -2) is a square.
2. Show the quadrilateral E (-7, 0), F (-2, 0), G (-2, -5), and H (-7, -5) is a square.

**Homework:**

1. Show the quadrilateral A (2, 4), B (4, -1), C (-1, -3), and D (-3, 2) is a square.
2. Show the quadrilateral E (0, 2), F (4, -2), G (0, -6), and H (-4, -2) is a square.
3. Show the quadrilateral A (-10, 4), B (-2, 10), C (4, 2), and D (-4, -4) is a square.
4. Show the quadrilateral E (2, 1), F (-1, 5), G (-5, 2), and H (-2, -2) is a square.