**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Jan. 10th, 2012**

**Geometry, Mrs. Sulkes**

**5.2 Ways to Prove that a Quadrilateral is a Parallelogram**

**5 Ways to Prove that a Quadrilateral is a Parallelogram**

1. By Def. of Parallelogram : Show that BOTH pairs of opposite sides are parallel.

2. By Th. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Show that BOTH pairs of opposite sides are congruent.

3. By Th. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Show that ONE pair of opposite sides are congruent and parallel.

4. By Th. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ : Show that BOTH pairs of opposite angles are congruent.

5. By Th. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Show that the diagonals bisect each other.

**Now let’s prove the four theorems listed above:**

**Theorem 5-4: (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)** If both pairs of opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram. (model the proof from page 172).

Diagram:

Given:

Prove:

**Theorem 5-5: (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)** If one pair of opposite sides of a quadrilateral are both congruent and parallel, then the quadrilateral is a parallelogram.

Diagram:

Given:

Prove:

**Theorem 5 -6: (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)** If both pairs of opposite angles of a quadrilateral are congruent, then the quadrilateral is a parallelogram.

Diagram:

Given:

Prove:

**Theorem 5-7: (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)** If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.

Diagram:

Given:

Prove: