

Name _____

More Quadrilateral Proofs

Do the following proofs on a separate piece of paper.

In your proofs:

- A) Draw and label a diagram to illustrate the given information.
- B) Restate what is given and what you must show in terms of your diagram
- C) Plan a proof. Organize your reasoning mentally or on your paper.
- D) Make a construction if necessary.
- E) From your plan, write a proof.
- F) In order to prove a conjecture, you cannot use itself to prove itself. You can use other conjectures to help prove it.

In problems 1-3, write a proof of each.

- 1) A quadrilateral with two pairs of opposite sides congruent is a parallelogram. (Note: Do not use Opp. Sides Con.)

- 2) A quadrilateral with one pair of parallel sides and one pair of opposite congruent angles is a parallelogram.

- 3) A quadrilateral with a pair of sides that are parallel and congruent is a parallelogram.

In problems 4-6, write a proof of each of the following conjectures using other conjectures that you have on your list.

- 4) The diagonals of a parallelogram bisect each other.
- 5) If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.
- 6) The vertex diagonal of a kite bisects the vertex angles
- 7) The non-vertex angles of a kite are congruent.

Try to do the following proof. They may be tricky.

- 8) A quadrilateral with one pair of congruent opposite sides and one pair of congruent opposite angles is a parallelogram.

Is this possible with the information given? Why?

- 9) The diagonals of a rhombus bisect each other and are perpendicular. (Rhombus Diagonals Theorem)