

**H. Geom.****Proving Quads**

Name \_\_\_\_\_

The following problems all refer to a quadrilateral ABCD (NOT the same quadrilateral for each problem). Make a diagram and do a complete proof for each problem.

1. *Given:* Diagonals  $\overline{AC}$  and  $\overline{BD}$  are perpendicular and bisect each other. Identify ABCD and prove that it is what you say.
2. *Given:* Diagonals  $\overline{AC}$  and  $\overline{BD}$  are congruent and two sides,  $\overline{AB}$  and  $\overline{CD}$ , are also congruent. Identify ABCD and prove that there are two pairs of congruent angles.
3. *Given:*  $\overline{AC}$  and  $\overline{BD}$  are perpendicular and  $\overline{AC}$  bisects  $\overline{BD}$  (but not conversely). Identify ABCD and prove that there are two pairs of congruent sides.
4. *Given:* All four angles are bisected by the diagonals (but the angles are not necessarily congruent). Identify and prove.
5. *Given:* Both diagonals bisect each other. Identify and prove.

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