

6.4

Name (print first and last) \_\_\_\_\_

Per \_\_\_\_\_ Date: 2/5 due 2/7

6.4 Polygons: Quadrilateral proof

Geometry Regents 2013-2014 Ms. Lomac

 SLO: I can prove properties of various quadrilaterals.

(1)  Use the definition of a parallelogram to prove that opposite sides are congruent. (Use one or more of the following: add one diagonal to the diagram, congruent alt. int. angles, congruent triangles,  $\cong \triangle$ 's have  $\cong$  corresp. parts.)



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(2)  Use the definition of a parallelogram and the information you proved in #1 to prove that the diagonals bisect each other. (Use one or more of the following: congruent alt. int. angles, congruent opposite sides, vertical angles, congruent triangles,  $\cong \triangle$ 's have  $\cong$  corresp. parts, the fact that having 2 equal pieces of a segment means that the segment was bisected.)



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(3)  Use the definition of a rectangle to prove that it is a parallelogram. (Use one or more of the following: lines are parallel when the sum of the same side interior angles is  $180^\circ$ .)



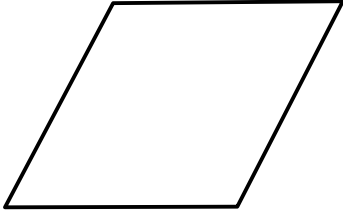
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(4)  Use the definition of a rectangle and anything you have proven so far to prove that the diagonals are congruent. (Use one or more of the following: right angles, congruent opp. sides, reflexive prop,  $\cong \triangle$ 's have  $\cong$  corresp. parts.)



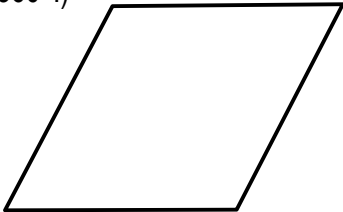
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(5)  Use the definition of a rhombus to prove that it is a parallelogram. (Use one or more of the following: congruent sides, add a diagonal, congruent triangles,  $\cong \triangle$ 's have  $\cong$  corresp. parts, congruent alt. int. angles with parallel lines.)



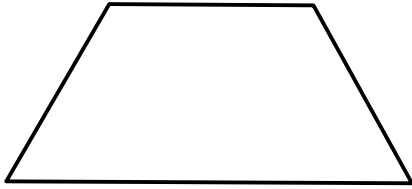
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(6)  Use the definition of a rhombus to prove that the diagonals are perpendicular. (Use one or more of the following: add both diagonals, congruent sides, congruent triangles,  $\cong \triangle$ 's have  $\cong$  corresp. parts, sum of the angles around a point is  $360^\circ$ .)



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(7)  Use the definition of isosceles trapezoid to prove that its base angles are congruent. (Use 2 altitudes to make a rectangle and 2 right triangles, show the triangles are congruent, use congruent parts.)



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(8)  Use the information from #7 to prove that the diagonals are congruent. (Use congruent parts and overlapping triangles.)

