**Advanced Geometry Partner Problems** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

COORDINATE PROOFS Date \_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_\_\_\_

*Use coordinate geometry to prove each statement. Draw a figure and choose convenient axes and coordinates!!*

1. The diagonals for a rectangle are congruent.
2. The diagonals of a parallelogram bisect each other.
3. The length of the median to the hypotenuse of a right triangle is half the length of

 the hypotenuse.

For problems 4 and 5, refer to trapezoid *MNOP.*

M (d, c)

N (b, c)

P (a, 0)

0

1. Prove that the median of a trapezoid is parallel to the bases. (The *median* of a

 trapezoid connects the *midpoints* of the two *non-parallel* sides)

1. Prove that the median of a trapezoid has a length equal to the *average* of the base

 lengths.