Coordinate Geometry Proofs Practice Problems

Look over the toolkit page that describes the steps used in a coordinate geometry proof. Use graph paper, ruler, pencil. Be sure to really show the original formula and show the steps clearly- be neat and precise. Write sentences that explain your ideas clearly.

1) Prove that quadrilateral *A*(1,2), *B*(2,5), *C*(5,7) and *D*(4,4) is a parallelogram by using slopes. *[Definition: If quadrilateral has both sets of opposite sides parallel then it is a parallelogram]*

2) Prove that *A*(1,1), *B*(4,4), *C*(6,2) are the vertices of a right triangle.

3) Prove that quadrilateral *A*(1,-2), *B*(13,4), *C*(6,8) and *D*(-2,4) is a trapezoid, but is *NOT* an isosceles trapezoid.

4) Prove that QUAD ABCD is a parallelogram by showing that the diagonals bisect each other using midpoints. *A*(-2,2), *B*(1,4), *C*(2,8) and *D*(-1,6)

5) Prove that QUAD ABCD *A*(-3,2), *B*(-2,6), *C*(2,7) and *D*(1,3) is a parallelogram because both pairs of opposite sides are congruent and then show it is a rhombus.

6) Prove that *A*(4,-1), *B*(5,6), *C*(1,3) is an isosceles right triangle using distance formula and Pythagorean theorem.

7) Guinevere and Lancelot see a drawing of quadrilateral *ABCD,*  *A*(2,2), *B*(5,-2), *C*(9,1) and *D*(6,5). Guinevere says the figure is a rhombus, but not a square.  Lancelot says the figure is a square.  Write a proof to show who is making the correct observation.