Application Problems for 13-2, 13-3, and 13-6 Name:

1) A wheel chair ramp is to be built at the town library. If the entrance to the library is 18 in. above ground, and the slope of the ramp is 1/15, how far out from the building will the ramp start? (hint: the ramp will create a right triangle)

2) Given points A (-6, -2), B (4, 2), C (6, 8), and D (-4, 2) show that ABCD is a parallelogram by proving that both pairs of opposite sides are parallel.

3) Given points E (-4, 1), F (2, 3), G (4, 9), and H (-2, 7) use the slopes of the diagonals to prove that it is a rhombus.

4) Given points N (-1, -5), O (0, 0), P (3, 2), and Q (8, 1) use slope to verify that the bases of the trapezoid are parallel.

5) Given points R (-4, 5), S (-1, 9), T (7, 3), and U (4, -1) use slope to determine that all four angles are right angles.

What quadrilateral would this shape be?

6) On a single graph create the following lines: $y = \frac{1}{2}x - 2$, $2x + y = 3$, and $y = 3x + 8$. Find the coordinates of the three vertices of this triangle.

7) Given the following points for an isosceles trapezoid prove that the midpoint of each side, when connected, forms a parallelogram. N (-1, -5), O (0, 0), P (3, 2), and Q (8, 1).

8) Given rectangle ABCD, prove that connecting the midpoints of each side will create a rhombus. A (-4, 5), B (-1, 9), C (7, 3), and D (4, -1)