Math 143
Distance and Midpoints Worksheet
Due: Wednesday, August 27th

Name:_____

1. Find the exact distance between the following pairs of points. Then find the midpoint of the line segment connecting them.

   (a) $P\ (-4, 3)$; $Q\ (2, -5)$

   (b) $P\ (-6, -5)$; $Q\ (6, 10)$

2. Determine whether or not the three points $P(-4, 3)$, $Q(2, 5)$, and $R(-1, -6)$ form a right triangle.

3. Determine whether or not the three points $P(-7, 4)$, $Q(6, -2)$, and $R(-1, 1)$ are collinear.

4. Suppose that the points P and Q have midpoint $(-9, 8)$. If Q is $(-16, 9)$, find P.

5. Suppose the income cutoff for poverty was \$19,307 in the year 2004 and that the poverty line was \$22,025 in 2008. Approximate the poverty line in the year 2006.

6. For each equation given, first make a table with at least three ordered pairs that are solutions. Then graph the equation.

   (a) $3x - 2y = 6$.

   (b) $y = \sqrt{x} - 3$

7. If a horizontal line is drawn through the point $(4, 3)$, at what point will it intersect the y-axis?

8. Find the coordinates of the points that divide the line segment joining $(4, 5)$ and $(10, 14)$ into three equal parts.