Name _____

Homework 10
Section 2.1

1. (1ea) Determine the *slope* of the following lines:

   (a) L_1, which passes through $(-7, 10)$ and $(11, -4)$.

   (b) L_2, which is perpendicular to the line passing through the points $(5, 7)$ and $(5, 10)$.

   (c) L_3, which is perpendicular to the line given by $3x + 5y - 6 = 0$.

2. (2ea) Citizens of a city who are connected to the municipal water supply are billed a fixed monthly amount plus a charge for each 100 cubic foot (HCF) of water used. Suppose a certain city charges a monthly fee of \$8 plus \$1.60 per HCF of water used. A customer's total monthly bill, B (in dollars), is given in terms of the amount of water used, w (in HCF), by the linear function

$$B(w) = 8 + 1.6w$$

   (a) What is a customer's bill if they use 9 HCF of water in a month?

   (b) How many cubic feet of water used would lead to a bill of \$35.20?

3. (4) Determine the equation of the line which passes through the points $(-2, -11)$ and $(4, 1)$. Give your answer in slope-intercept form.

4. (4) Determine the equation of the line which is parallel to $x + 3y = 7$ and passes through the point $(8, 5)$

5. (5) The perpendicular bisector of a line segment is the line that is perpendicular to the line segment and passes through the midpoint of the line segment. Determine the equation of the perpendicular bisector of the the line segment with endpoints $(-3, 14)$ and $(7, -1)$. [If you don't know how to find the midpoint, be proactive...look it up.]