Algebra II: Exam #1

Directions: Write down all of your steps to each problem and show all of your work.

1. Fill in the following:
   
a. Write the slope formula:

   b. Write the point-slope formula:

   c. Write the slope-intercept form:

   d. Write the coordinate form of an x-intercept:

   e. Write the coordinate form of a y-intercept:
2. Find the slope of the line with the given conditions

   a. The line passing through (3,-4) and (-2,6)

   b. The line with equation $6x - 3y = 3$

3. Find the coordinates of the $x$ and $y$ intercepts of the line with equation $5x - 10y = 30$. 
4. Write the equation of the line that satisfies the given conditions. Convert your answer to slope-intercept form.

a. Passing through (-3,2) with a slope of -1

b. Passing through (-1, -2) and perpendicular to the line \( y = -\frac{1}{6}x - \frac{5}{6} \)

c. The line passes through (2,3) and is parallel to the line \( y=3 \).
5. Graph the following linear equations. Remember to (1) label the axes and (2) use a straightedge.

\[ y = -\frac{1}{3}x - 3 \]

\[ y = -\frac{1}{3}x + 2 \]

a. Are the two lines parallel, perpendicular, or neither? Explain.

b. Is (3,-4) a solution to \( y = -\frac{1}{3}x - 3 \) (the top line)? Show or explain.
6. Graph the solution to the following system of inequalities. Remember to (1) label the axes and (2) use a straightedge.

\[
x \leq -1 \\
-3x - 3y > 0
\]

a. Is (-2,-2) a solution to this system of inequalities? Show or explain.

b. Is (-1,-3) a solution to this system of inequalities? Show or explain.