Math 99 Fall 2007
Worksheet 1
Due Monday October 1 Name: _____

1. **Section 7.1: Equations and graphs of lines**:
In each case draw the line on the x-y plane and find the equation for the line. In the graph, label axes and include the coordinates of both the x-intercept and y-intercept of the line.

(a) Line with slope 2, passing through the point (-4, 0)

(b) Line with slope 0 passing through (1,-5)

(c) Line with undefined slope passing through (2, 2)

(d) Line passing through (0,-2) and (-4, 0)

(e) Line passing through (-3, 2) and (4, 1)

(f) Line parallel to the line: $3x + 2y = 10$ and passing through (0, 7)

(g) Line perpendicular to the above line and passing through (3, 1)

2. **Section 7.2:** For each part, clearly define your variables, find an algebraic equation to describe the data, then finish answering the question:

(a) On St. Patrick's Day, you rent a metal detector to find leprechaun gold. There is a $20 fee to rent a metal detector, plus $4 per hour. If the total charge is $56, for how many hours is the metal detector rented?

(b) The percent of US households that access the internet by dial up was 91% in 2000 and 63% in 2005. Let the year 2000 correspond to x = 0.

(i) Use these ordered pairs to to write an equation that models the data.

(ii) Find the average rate of change per year. What does the slope tells us in the context of this problem?

(iii) Use the equation from above to predict the percent of US households that will access the internet by dial up in 2008. Round your answer to the nearest percent.

(c) The median household income in 1995 was $22,393 and in 1999 it was $27,910.

(i) Use the above information, let x = 5 respresent the year 1995 and write an equation that models medial household income.

(ii) Use the equation to appoximate the median income for 1997.

(iii) How does your result compare to the actual value, $25,050?

3. **Section 9.3:** Graph the solution sets for the following compound inequalities:

(a) $x - 3y \geq 6$ and $x \leq 2$

(b) $y - 2x > 4$ or $|y| < 2$