PRACTICE EXAM 1 - MATH 111

DATE: Friday, September 23
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Find the equation of the straight line that passes through the points $(-2, 3)$ and $(3, -12)$. Then find the intercepts of the line. (You do not have to graph!)

2. Suppose that Jim's base salary is \$1,000 per month and that he receives a commission of 10% of the sales, for sales above \$3,000 per month. Write a function expressing Jim's monthly salary C in terms of the amount of sales S that he makes per month. Then find the amount of sales needed for him to achieve a \$1,500 monthly salary.

3. Use the substitution method to solve the following system of linear equations:

$$\left\{\begin{array}{rcrcr} 2x & - & y & = & 31 \\ -4x & - & 5y & = & -13 \end{array}\right\}$$

4. A friend of yours that owns a coffee house, but has never taken Math 111, wants to make 5 pounds of a specialty coffee blend that will sell for \$7.00 per pound. He is going to mix a cheap variety of arabica coffee selling for \$4.00 per pound and a more expensive colombian variety selling for \$10.00 per pound. Can you help him find out how many pounds from each of the two varieties he ought to put into the mixture?

5. Graph the solution set of the following system of inequalities:

$$\left\{\begin{array}{l} x + 2y \geq 2 \\ 3x + y \geq 3 \\ 4x + 5y \leq 4 \\ x \geq 0, y \geq 0 \end{array}\right.$$

6. Solve the following system of linear equations by using the Gauss-Jordan method:

$$\left\{\begin{array}{rcrcrcr} x & + & y & - & z & = & 6 \\ 2x & - & y & + & z & = & 3 \\ -4x & + & 7y & - & z & = & -15 \end{array}\right\}$$