Math 99 Fall 2007
Worksheet 4
Due Monday October 22 Name: _____

Section 8.4: Systems of Linear Equations in Three Variables
Solve the following systems of linear equations. When the system has infinitely many solutions, give the equation of the line or plane on which all of the solutions lie.

(1) $-2x + 5y + z = -3$
$5x + 14y - z = -11$
$7x + 9y - 2z = -5$

(2) $2x - 8y + 2z = -10$
$-x + 4y - z = 5$
$\frac{1}{8}x - \frac{1}{2}y + \frac{1}{8}z = \frac{-5}{8}$

(3) $-3x + y - z = -10$
$-4x + 2y + 3z = -1$
$2x + 3y - 2z = -5$

(4) $5x - 2y + 3z = -9$
$4x + 3y + 5z = 4$
$2x + 4y - 2z = 14$

Sections 8.5: Applications of Systems of Linear Equations
First, define your variables and set up the system of equations using these variables. Solve the system using substitution or elimination.

(1) The length of a basketball court is 44 feet more than the width. If the perimeter is 288 feet, what are the length and the width of the court?

(2) A team played 82 games. Their losses and ties totaled 56. They had 21 fewer wins than losses. How many wins, losses and ties did they have?

(3) In 2000, exports and imports with Mexico were \$57 billion less than those with Canada. Total export and import involving these 2 countries were \$211 billion. How much were exports and imports with each country?

(4) How many liters each of 15% acid and 33% acid should be mixed to get 120 liters of 21% acid?

(5) A freight train and an express train leave towns 390 miles apart, traveling towards one another. The freight train travels 30 mph slower than the express train. They pass one another 3 hours later. Find the speed of the freight train and the speed of the express train.

(6) Traveling for 3 hours into a steady headwind, a plane flies 1650 miles. The pilot determines that flying with the same wind for 2 hours, she could make a trip of 1300 miles. Find the speed of the plane and the speed of the wind.