Math 6: Homework 26
Homework #26 is due May 13.

System linear equations solved by addition

1. Simplify both equations.
2. Look for coefficients in front of one of the unknowns, x or y, which are the same.
   a. If the coefficients are different try to make them the same by multiplying one or both equations by a number.
3. Add/subtract the two equations so this unknown cancels out.
4. Now, you have one equation with one unknown, solve it.
5. Go back to one of the two equations in your system, substitute the unknown you just found, find the second unknown.

Homework

1. Solve by using addition:

   a) $\begin{vmatrix} 2x + y = 8 \\ 3x + y = 10 \end{vmatrix}$

   b) $\begin{vmatrix} x - 3y = 2 \\ x - 5y = 2 \end{vmatrix}$

   c) $\begin{vmatrix} 5y - 2x = 1 \\ 15y - 3x = -3 \end{vmatrix}$

   d) $\begin{vmatrix} (2x - 3)(3y - 4) = (2y - 5)(3x + 1) \\ \quad 3(y + 2) - 2(x - 3) = 16 \end{vmatrix}$

2. Solve the system equations in the most rational way:

   a. $\begin{vmatrix} 1 - x = 3(2x + y - 1) \\ 2 + 2x = 6(2x + y - 1) \end{vmatrix}$

   b. $\begin{vmatrix} 5x + 12\frac{y-1}{3} = 6 \\ x + 6\frac{y-1}{3} = 0 \end{vmatrix}$

3. The ratio of two numbers is 0.8. If we divide the smaller number by 10 and subtract 15 from the larger number, we will get a ratio which is 8 times smaller than the first ratio. Find the two numbers.

4. Find the shortest distance from the origin (0; 0) to the line given by the equation
   $y = -2x + 8$. [You can use any method you choose]

5. 10. Compute the area of the rectangle ABCD if A is at (0; 0), B at (2; 3), and D at (-6; 8). [It can be done in more than one way.]