

Bellwork Friday, March 21, 2014

1. There are 1170 students in a school. The ratio of girls to boys is 23:22. The system of equations below describes the relationships between the number of girls and boys.

$$\begin{array}{r} g + b = 1170 \\ -b \quad -b \\ \hline \end{array} \quad \frac{g}{b} = \frac{23}{22}$$

Use substitution to find the number of boys and girls in the school.

$$\begin{array}{r} 1170 - b \times \frac{23}{22} \\ b \quad \quad \quad 22 \\ \hline 23b = 25740 - 22b \\ +22b \quad \quad \quad +22b \\ \hline \end{array} \quad \begin{array}{r} 45b = 25740 \\ 45 \quad 45 \\ \hline b = 572 \\ g = 598 \end{array}$$

2. Use substitution to solve the following system of equations.

$$\begin{array}{l} r = t + 3 \quad r = 4 + 3 \quad r = 7 \\ t + r + s = 20 \rightarrow t + t + 3 + s = 20 \rightarrow 2t + s = 17 \\ t + 5r + 10s = 129 \end{array}$$

$$\begin{array}{l} t + 5(t + 3) + 10s = 129 \\ t + 5t + 15 + 10s = 129 \\ 6t + 10s = 114 \end{array}$$

$$\begin{array}{l} 3(2t + s = 17) \rightarrow 2t + s = 17 \\ 6t + 10s = 114 \\ \hline 6t + 3s = 51 \\ 6t + 10s = 114 \\ \hline -7s = -63 \\ s = 9 \end{array}$$

$$\begin{array}{l} 2t + 9 = 17 \\ 2t = 8 \\ t = 4 \end{array}$$

$$(7, 9, 4)$$

3. Solve this system of equations using Elimination

$$\begin{array}{l} -4x + 5y = 19 \\ 4x - 3y = -13 \end{array}$$

$$\frac{2y = 6}{2} \quad \boxed{-13}$$

$$4x - 3(3) = -13$$

$$4x - 9 = -13$$

$$\begin{array}{r} 4x = -4 \\ 4 \quad \quad 4 \\ \hline x = -1 \end{array}$$

$$\begin{array}{l} 4x - 3(-1) = -13 \\ 4x + 3 = -13 \\ -3 \quad -3 \\ \hline 4x = -16 \\ 4 \quad 4 \\ \hline x = -4 \end{array}$$

4. Solve this system of equations using Elimination

$$\begin{array}{l} 8c - 3d = 4 \\ 5c - 3d = -2 \end{array}$$

$$\begin{array}{r} 3c \quad 0 = 6 \\ 3 \quad \quad \quad 3 \\ \hline c = 2 \end{array}$$

$$(2, 4)$$

$$\begin{array}{r} 16 - 3d = 4 \\ 76 \\ -72 \\ \hline -4 = 4 \end{array}$$