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.

$$g + b = 1170 \qquad \frac{g}{b} = \frac{23}{22}$$

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

$\frac{1170-b}{b} = \frac{23}{22}$ → $456 = \frac{25740}{45}$ → $b = 572$

$22b = 25740 - 23b$ → $g = 598$

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

$r = t + 3$ → $r = 4 + 3$ → $r = 7$

$t + r + s = 20$ → $t + t + 3 + s = 20$ → $2t + s = 17$

$t + 5r + 10s = 129$

$t + 5(t+3) + 10s = 129$

$t + 5t + 15 + 10s = 129$

$6t + 10s = 114$

$3(2t + s = 17)$ → $6t + 3s = 51$

$6t + 10s = 114$

$-7s = -63$

$s = 9$

$2t + 9 = 17$ → $t = 4$

$(7, 9, 4)$

3. Solve this system of equations using Elimination

$-4x + 5y = 19$

$4x - 3y = -13$

$\frac{2y}{2} = \frac{6}{2}$

$y = 3$

$(7, 3)$

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

$4x - 9 = -13$

$\frac{4x}{4} = \frac{-4}{4}$

$x = -1$

$4x - 3(-1) = -13$

$4x + 3 = -13$

$-3 \quad -3$

$\frac{4x}{4} = \frac{-16}{4}$

$x = -4$

4. Solve this system of equations using Elimination

$8c - 3d = 4$

$5c - 3d = -2$

$3c + 0 = 6$

$\frac{3c}{3} = \frac{6}{3}$

$c = 2$

$(2, 4)$

$16 - 3d = 4$

$\frac{-12}{-3} = \frac{-12}{-3}$

$d = 4$