

Bellwork Thursday, March 20, 2014

Solve each system of equations using substitution.
Give the answer as an ordered pair.

1. $y = 1.2x - 2$

$$\begin{aligned} y &= -4.8x + 19 \\ 1.2x - 2 &= -4.8x + 19 \\ +4.8 & \quad +4.8 \\ 6x - 2 &= 17 \\ +2 & \quad +2 \\ 6x &= 19 \\ \frac{6x}{6} &= \frac{19}{6} \\ x &= 3.1\bar{6} \end{aligned}$$

$$\begin{aligned} y &= 1.2x - 2 \\ y &= 1.2(3.1\bar{6}) - 2 \\ y &= 2.2 \end{aligned}$$

$(3.1\bar{6}, 2.2)$

2. $h = 3g - 1$
 $7g - 3h = 11$

$$\begin{aligned} 7g - 3(3g - 1) &= 11 \\ 7g - 9g + 3 &= 11 \\ -2g + 3 &= 11 \\ -2g &= 8 \\ \frac{-2g}{-2} &= \frac{8}{-2} \\ g &= -4 \end{aligned}$$

$$\begin{aligned} h &= 3g - 1 \\ h &= 3(-4) - 1 \\ h &= -12 - 1 \\ h &= -13 \end{aligned}$$

$(-4, -13)$

3. Solve using substitution. Give the answer as an ordered pair.

$$\begin{aligned} 5x + 9y &= 44 \\ 3x - 6y &= -42 \end{aligned}$$

$$\begin{aligned} 5(-14 + 2y) + 9y &= 44 \\ -70 + 10y + 9y &= 44 \\ -70 + 19y &= 44 \\ +70 & \quad +70 \\ 19y &= 114 \\ \frac{19y}{19} &= \frac{114}{19} \\ y &= 6 \end{aligned}$$

$$\begin{aligned} 3x - 6y &= -42 \\ 3x - 6(6) &= -42 \\ 3x - 36 &= -42 \\ 3x &= -42 + 36 \\ 3x &= -6 \\ \frac{3x}{3} &= \frac{-6}{3} \\ x &= -2 \end{aligned}$$

$(-2, 6)$

4. Each can of Coke costs \$1.50 and each Gatorade costs \$2.00. Iman bought a total of 24 drinks and spent a total of \$45. Write a system of equations and solve to find how many of each drink Iman purchased.

$$\begin{aligned} 45 &= 1.50c + 2g \\ 24 &= c + g \end{aligned}$$

$$\begin{aligned} 45 &= 1.50(24 - g) + 2g \\ 45 &= 36 - 1.5g + 2g \\ 45 &= 36 + 0.5g \\ -36 & \quad -36 \\ 9 &= 0.5g \\ \frac{9}{0.5} &= \frac{0.5g}{0.5} \\ g &= 18 \end{aligned}$$

$$\begin{aligned} 24 &= c + g \\ 24 &= c + 18 \\ -18 & \quad -18 \\ 6 &= c \end{aligned}$$

$(6, 18)$