Warm Up 3/11

A sixth-grade class sells pennants and flags. They earn \$1 profit for each pennant sold and \$6 profit for each flag sold. They sell 50 items in total for a profit of \$115.

a. Write two equations that represent the relationship between the number of pennants sold p and the number of flags sold f.

b. How many pennants and how many flags were sold?

Let x = # of pennants sold

Let y = # of flags sold

$$\begin{cases} x+y=50 \\ x+6y=115 \end{cases}$$

$y=-x+50$

$y=-\frac{1}{6}x+\frac{115}{6}$

$$\begin{cases} x=50-y \\ x=115-6y \end{cases}$$

$50-y=115-6y$

$+6y \quad +6y$

$50+5y=115$

$-50 \quad -50$

$\frac{5y}{5}=\frac{65}{5}$

$y=13$

$x+y=50$

$x+13=50$

$-13 \quad -13$

$x=37$

$-x+50=-\frac{1}{6}x+\frac{115}{6}$

$+x \quad +x$

$50=\frac{5}{6}x+\frac{115}{6}$

What would happen if:

$6\left[-x+50=-\frac{1}{6}x+\frac{115}{6}\right]$

$-6x+300=-1x+115$

$+6x \quad +6x$

$300=5x+115$

$\frac{115}{6}\cdot\frac{6}{1}$

$-115 \quad -115$

$\frac{185}{5}=\frac{5x}{5}$

$37=x$

Either way is fine, but it is usually easier if you don't have to deal with fractions.

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Get out your homework, any questions?

Homework Questions?

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Solve each system of equations.

3. $\begin{cases} y = 6x + 4 \\ y = 4x - 2 \end{cases}$ **4.** $\begin{cases} y = 3x + 7 \\ y = 5x - 7 \end{cases}$ **5.** $\begin{cases} y = -2x - 9 \\ y = 12x + 19 \end{cases}$

6. $\begin{cases} y = -x + 16 \\ y = -x - 8 \end{cases}$ **7.** $\begin{cases} y = 17x - 6 \\ y = 12x + 44 \end{cases}$ **8.** $\begin{cases} y = -20x + 14 \\ y = -8x - 44 \end{cases}$

#6 $-x+16=-x-8$

$+x \quad +x$

$16=-8$

untrue

no solution

Possibilities:

1 solution

0 solutions

infinite solutions

#8 $\begin{cases} y=-20x+14 \\ y=-8x-44 \end{cases}$

$-20x+14=-8x-44$

$+44$

$-20x+58=-8x$

$+20x \quad +20x$

$\frac{58}{12}=\frac{12x}{12}$

$\frac{29}{6}=x$

$y=-20x+14$

$6\left[y=-20\left(\frac{29}{6}\right)+14\right]$

$6y=-20(29)+84$

$6y=-580+84$

$\frac{6y}{6}=-\frac{496}{6}$

$y=-\frac{248}{3}$

$\left(\frac{29}{6},-\frac{248}{3}\right)$

Classwork

Page 33, #'s 9-~~16~~ 14, 16

For Exercises 9–14, write the equation in $y = mx + b$ form.

9. $4x + 6y + 12 = 0$

10. $-7x + 9y + 4 = 0$

11. $-4x - 2y - 6 = 0$

12. $-x + 4y = 0$

13. $2x - 2y + 2 = 0$

14. $25x + 5y - 15 = 0$

16. A seventh-grade class sells mouse pads and cell phone cases with their school logo on them. The class earns $2 profit for each mouse pad sold and $4 profit for each cell phone case sold. They sell 100 items in total for a profit of $268.

a. Write two equations that represent the relationship between the number of mouse pads sold m and the number of cell phone cases sold c.

b. How many mouse pads and how many cell phone cases were sold?