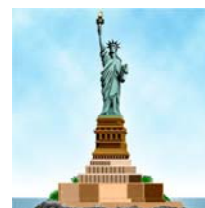


## Warm-up 10-23

Solve the following systems of equations

1. 
$$\begin{aligned} -28x - 14y &= 98 \\ -20x + 14y &= -50 \end{aligned}$$

2. 
$$\begin{aligned} 4x + 4y &= -14 \\ x + 2y &= -6 \end{aligned}$$



# Warm-up 10-24



Solve the following systems of equations

1.  $-28x - 14y = 98$   $(-1, -5)$   
 $-20x + 14y = -50$

$$\begin{array}{r} -28x - 14y = 98 \\ -20x + 14y = -50 \\ \hline -48x = 48 \\ \underline{-48} \quad \underline{-48} \end{array}$$

$x = -1$

$-20(-1) + 14y = -50$

$$\begin{array}{r} 20 + 14y = -50 \\ -20 \quad \quad -20 \\ \hline 14y = -70 \\ \underline{14} \quad \underline{14} \end{array}$$

$y = -5$

2.  $4x + 4y = -14$   $(-1, -2.5)$   
 $-2(x + 2y = -6)$

$$\begin{array}{r} 4x + 4y = -14 \\ -4x - 8y = 24 \\ \hline \end{array}$$

$$\begin{array}{r} -4y = 10 \\ \underline{-4} \quad \underline{-4} \\ y = -2.5 \end{array}$$

$$\begin{array}{r} 4x + 4y = -14 \\ -2x - 4y = 12 \\ \hline \end{array}$$

$$\begin{array}{r} 2x = -2 \\ \underline{2} \quad \underline{2} \\ x = -1 \end{array}$$

$$\begin{array}{r} 4(-1) + 4y = -14 \\ -4 + 4y = -14 \\ +4 \quad \quad +4 \\ \hline \end{array}$$

$$\begin{array}{r} 4y = -10 \\ \underline{4} \quad \underline{4} \\ y = -2.5 \end{array}$$

$$-3(5w + 2L = 26)$$

$$15w - 3L = 6$$

$$\begin{array}{r} 15w - 3L = 6 \\ -15w - 6L = -78 \\ \hline \end{array}$$

$$\frac{-9L}{-9} = \frac{-72}{-9}$$

$$L = 8$$

w-width  
L- Length

$$\begin{aligned} 5(2) + 2(8) &= 26 \\ 10 + 16 &= 26 \\ 26 &= 26 \checkmark \end{aligned}$$

width: 2  
length: 8

$$15w - 3(8) = 6$$

$$\begin{array}{r} 15w - 24 = 6 \\ +24 \quad +24 \\ \hline \end{array}$$

$$\frac{15w}{15} = \frac{30}{15}$$

$$w = 2$$

$$\begin{array}{l} 2975 = 50s + 75L \quad S\text{-small} \\ (52 = s + L) \cdot 50 \quad L\text{-Large} \end{array}$$

$$\begin{array}{r} 2975 = \cancel{50s} + 75L \\ -2600 = \cancel{-50s} - 50L \\ \hline 375 = \frac{\cancel{25L}}{25} \\ 15 = L \end{array}$$

$$(2, 8)$$

$$w = 2 \text{ units}$$

$$L = 8 \text{ units}$$

$$5(2) + 2y = 26$$

$$\begin{array}{r} 10 + 2y = 26 \\ -10 \quad -10 \\ \hline \end{array}$$

$$2y = 16$$

$$y = 8$$

$$\begin{cases} 5x + 2y = 26 & \times 3 \\ 15x - 3y = 6 & \times 2 \end{cases}$$

$$15x + 6y = 78$$

$$30x - 6y = 12$$

$$\begin{array}{r} 45x = 90 \\ \hline 45 \end{array}$$

$$x = 2$$

$$15(2) - 3(8) = 6$$

$$30 - 24 = 6$$

$$6 = 6 \checkmark$$

$$\begin{aligned}50s + 75L &= 2975 \\ s + L &= 52\end{aligned}$$

S - small  
L - Large

$$\begin{aligned}5w + 2L &= 26 \\ 15w - 3L &= 6\end{aligned}$$

w  
L



Sam spent \$24.75 to buy 12 flowers for his girlfriend. The bouquet contained roses and daisies. How many roses and daisies did Sam buy?

7 daisies  
5 roses

$$24.75 = 2.5r + 1.75d$$

$$(12 = r + d) \cdot 2.5$$

$$24.75 = 2.5r + 1.75d$$

$$-30 = -2.5r - 2.5d$$

$$\hline -5.25 = -0.75d$$

$$7 = d$$

$$12 = r + d$$

$$\cdot 7 \quad \cdot 7$$

$$\hline 5 = r$$

$$24.75 = 2.5(5) + 1.75(7)$$

$$24.75 = 12.5 + 12.25$$

$$24.75 = 24.75 \checkmark$$

**Fitness** Rusty burns 5 Calories per minute swimming and 11 Calories per minute jogging. In the morning, Rusty burns 200 Calories walking and swims for  $x$  minutes. In the afternoon, Rusty will jog for  $x$  minutes. How many minutes must he jog to burn at least as many Calories  $y$  in the afternoon as he did in the morning? Round your answer up to the next whole number of minutes.

34 minutes



$$200 + 5x = y$$

$$11x = y$$





**Recreation** Casey wants to buy a gym membership. One gym has a \$150 joining fee and costs \$35 per month. Another gym has no joining fee and costs \$60 per month.

- a. In how many months will both gym memberships cost the same? What will that cost be? **6 months; \$360** 
- b. If Casey plans to cancel in 5 months, which is the better option for him? Explain. 

$$150 + 35x = y$$

$$60x = y$$



**Landscaping** The gardeners at Middleton Place Gardens want to plant a total of 45 white and pink hydrangeas in one flower bed. In another flower bed, they want to plant 120 hydrangeas. In this bed, they want 2 times the number of white hydrangeas and 3 times the number of pink hydrangeas as in the first bed. Use a system of equations to find how many white and how many pink hydrangeas the gardeners should buy altogether.

$$w + p = 45$$
$$2w + 3p = 120$$

45 white; 120 pink



# Homework

Group Cars and Need-to-Knows

Worksheet Word Problems