

Warm-Up

In your graph paper, answer the following questions:

1. GameTime charges \$4.25 per day to rent video games. Write an equation that represents the cost C to rent a video game for d days.
2. If you have \$34 to spend, for how many days will you be able to rent a game? Replace one of the variables in the equation from #1, and solve to find the answer.

Solving Two Step Equations

Steps:

- 1.
- 2.
- 3.

Remember:

The Golden Rule of Algebra

Do unto one side as you do to the other

To solve, you must get the variable alone on one side.

** You must always show all your ALGEBRAIC steps

Solve

$$5x + 7 = -28$$

Check Your Work
by putting your answer back into the equation

$$\frac{x}{2} - 5 = 3$$

Practice Problems...

Solve the following equations, show your steps, and check your answer.

1) $4n + 12 = -4$

2) $18 + x/-3 = 45$

3) $-7 + 3x = 23$

4) $x/5 - 6 = 9$

Ms. Chang's class decides to use the Cool Tee's company to make their walkathon shirts. The company charges a \$20 start-up fee and then charges \$2 per shirt.

1. Write an equation that represents the relationship between the cost C and the number of shirts n .
2. The class wants to buy 25 shirts. How much will the total cost be? Replace one of the variables in the equation from #1 and solve to find the answer.
3. The class has \$80 to spend on shirts. How many shirts can they buy? Replace one of the variables in the equation from #1 and solve to find the answer.

Homework:

**Write and Solve Two Step Equations
worksheet**

Solving Two Step Equations

Steps:

1. Undo addition or subtraction.
2. Undo multiplication or division.
3. Check your answer.

Remember:

The Golden Rule of Algebra

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To solve, you must get the variable alone on one side.

** You must always show all your ALGEBRAIC steps

Solve

$$\begin{array}{r} 5x + 7 = -28 \\ -7 \quad -7 \\ \hline 5x = -35 \\ \div 5 \quad \div 5 \\ \hline x = -7 \end{array}$$

Check Your Work
by putting your answer back into the equation

$$\begin{array}{r} 5(-7) + 7 \stackrel{?}{=} -28 \\ -35 + 7 \stackrel{?}{=} -28 \\ -28 \checkmark = -28 \end{array}$$

$$\begin{array}{r} \frac{x}{2} - 5 = 3 \\ +5 \quad +5 \\ \hline \frac{x}{2} = 8 \\ \cdot 2 \quad \cdot 2 \\ \hline x = 16 \end{array}$$

$$\begin{array}{r} \frac{16}{2} - 5 \stackrel{?}{=} 3 \\ 8 - 5 \stackrel{?}{=} 3 \\ 3 \checkmark = 3 \end{array}$$

Ms. Chang's class decides to use the Cool Tee's company to make their walkathon shirts. The company charges a \$20 start-up fee and then charges \$2 per shirt.

1. Write an equation that represents the relationship between the cost C and the number of shirts n .

$$C = 2n + 20$$

2. The class wants to buy 25 shirts. How much will the total cost be? Replace one of the variables in the equation from #1 and solve to find the answer.

$$C = 2(25) + 20$$

$$C = 50 + 20 = 70$$

\$70

3. The class has \$80 to spend on shirts. How many shirts can they buy? Replace one of the variables in the equation from #1 and solve to find the answer.

$$\begin{array}{r} 80 = 2n + 20 \\ -20 \quad -20 \\ \hline 60 = 2n \\ \div 2 \quad \div 2 \\ \hline 30 = n \end{array}$$

30 shirts

A salesman gets \$40 per day as wages and \$4.50 as commission for every pair of athletic shoes he sells in a day.

Write an equation to represent how many pairs of shoes p he must sell in a day to make \$112 on that day.

Write an equation: $40 + 4.5p = 112$ The number of pairs of shoes is 16 .

Ann takes a taxi from the airport to reach her home. The taxi fare is \$2.10 per mile, and she gives the driver a tip of \$5.

If Ann pays a total of \$49.10, write an equation to represent the total cost in terms of the distance, x , in miles between the airport and her home.

$$2.1x + 5 = 49.10$$

Sal added 1.2 gallons of water to a bucket that was already half full. The total volume of water after Sal added 1.2 gallons was 3.7 gallons.

Write an equation to find the total capacity, c , of the bucket.

$$1.2 + \frac{1}{2}c = 3.7$$

When 3.6 is subtracted from three times a number n , the result is 11.4.

Write an equation to represent this statement.

$$3n - 3.6 = 11.4$$

After Jack added 15.2 gallons of water to a half-full bucket of water, the total volume of water in the bucket was 37.75 gallons.

Write an equation and solve it to determine how many gallons of water, w , the bucket can hold in total.

$$\text{The equation is: } 15.2 + \frac{1}{2}w = 37.75$$

The bucket can hold 45.1 gallons of water.

When a number n is increased by 25% and 11 is added, the result is 51.

Write an equation to represent this statement.

$$1.25n + 11 = 51$$

When 2.5 times a number n is subtracted from 6.1, the result is -11.4 .

Write an equation to represent this statement and find the value of n .

$$\text{Write an equation: } 6.1 - 2.5n = -11.4 \text{ The number is } 7$$

7 more than 4 times a number n is equal to 59.

Write an equation to represent this statement and find the value of n .

$$\text{Write an equation: } 7 + 4n = 59 \text{ The number is } 13$$

John has read the first 114 pages of a novel. He has read 3 pages less than one-third of the novel.

Write an equation to describe the total number of pages p in the novel, and find the value of p .

$$\text{Write an equation: } \frac{1}{3}p - 3 = 114 \text{ The novel has } 351 \text{ pages.}$$

When 2 is added to $\frac{1}{5}$ of a number n , the result is 3.2.

Write an equation describing this, and find the value of n .

$$\text{The equation is: } 2 + \frac{1}{5}n = 3.2$$

The number n is 6 .

- If you add 15 to 3 times the mystery number, you get 78. What is the mystery number?
- If you subtract 27 from 5 times the mystery number, you get 83. What is the mystery number?

a. $x = 21$; you can use the equation $3x + 15 = 78$ to represent the given information. Subtract 15 from each side of the equation to get $3x = 63$, and then divide each side by 3.
b. $x = 22$; you can use the equation $5x - 27 = 83$ to represent the given information. Add 27 to each side of the equation to get $5x = 110$, and then divide each side by 5.