1. $8 - p = -12 - 3p$

2. $4(7 - d) = 5d - 17$

Bell Ringer - Solve the equations.

1. $8 - p = -12 - 3p$

$$+3p \qquad +3p$$

$$8 + 2p = -12$$

$$-8 \qquad -8$$

$$\frac{2p}{2} = \frac{-20}{2}$$

$$p = -10$$

2. $4(7 - d) = 5d - 17$

$$28 - 4d = 5d - 17$$

$$+4d \qquad +4d$$

$$28 = 9d - 17$$

$$+17 \qquad +17$$

$$\frac{45}{9} = \frac{9d}{9}$$

$$5 = d$$

Write an equation to find each number. Then solve.

1. A number equals four less than three times the number. What is the number?

Write an equation to find each number. Then solve.

1. A number equals four less than three times the number. What is the number?

$x =$ the number

$$x = 3x - 4$$
$$-3x \quad\quad -3x$$
$$\frac{-2x}{-2} = \frac{-4}{-2}$$
$$x = 2$$

$$x = 3x - 4$$
$$-x \quad\quad -x$$
$$0 = 2x - 4$$
$$+4 \quad\quad\quad +4$$
$$4 = 2x$$
$$2 = x$$

Write an equation to find each number. Then solve.

2. Three times a number equals 40 more than five times the number. What is the number?

Write an equation to find each number. Then solve.

2. Three times a number equals 40 more than five times the number. What is the number?

$x =$ the number

$$3x = 5x + 40$$
$$-5x \qquad -5x$$

$$\frac{-2x}{-2} = \frac{40}{-2}$$

$$x = -20$$

Write an equation to find each number. Then solve.

3. Eight times a number equals 24 more than two times the number. What is the number?

Write an equation to find each number. Then solve.

3. Eight times a number equals 24 more than two times the number. What is the number?

$$x = \text{the number}$$

$$8x = 2x + 24$$
$$-2x \qquad -2x$$
$$\frac{6x}{6} = \frac{24}{6}$$
$$x = 4$$

Solving Real-Life Problems using Equations with a Variable on Each Side

(This is a review from yesterday)

Steps:

1) Read through the problem and sketch a plan.
2) Define the variable; let n = _____
3) Write an equation with a variable on each side.
4) Solve the equation. The solution is called a breakeven point.
5) Explain your solution with a statement.

Breakeven Point - the number or value where both options or plans are equal. An analysis of values above or below the breakeven point can determine which option is better.

Story Problem Example

A rock-climbing gym charges nonmembers $16 per day to use the gym and $8 per day to rent climbing equipment. Members pay a yearly fee of $450 for unlimited climbing and $6 per day for equipment rental. Write and solve an equation to find how many times you must use the gym to justify becoming a member.

Story Problem Example

A rock-climbing gym charges nonmembers $16 per day to use the gym and $8 per day to rent climbing equipment. Members pay a yearly fee of $450 for unlimited climbing and $6 per day for equipment rental. Write and solve an equation to find how many times you must use the gym to justify becoming a member.

x = number of times you use the gym

$$16x + 8x = 450 + 6x$$

$$24x = 450 + 6x$$

$$-6x \qquad\qquad -6x$$

$$18x = 450$$

$$x = 25$$

Statement: If you go more than 25 times, it makes sense to become a member because it's cheaper.