Name_____

Solving Two Step Equations

The key to solving any equation is to get the variable onto a side all it's own. Say the equation we are working with is as follows:

$$2x + 10 = 34$$

In solving any equation, we must remember the opposites operations. If we want to get rid of addition, we need to use it's opposite operation of subtraction. If we want to get rid of subtration, we need to use it's opposite operation addition. Same goes the multiplication and division. If we are wanting to get rid of one, we have to use the other. We always want to work through our equations using a reverse order of operations. Remember PEMDAS? (Parenthesis, Exponents, Multiplication, Division, Addition and Subtraction) Now, back to our equation. Using reverse order of operations, we are going to begin by getting rid of the addition.

$$2x + 10 - 10 = 34$$

Remember though, for this to be correct, whatever we do to one side of the equation, we have to do to both.

$$2x + 10 - 10 = 34 - 10$$

Simplified down, this would be:

$$2x = 24$$

With the addition out of the picture, all we have left now is the multiplication. Remember ing that the opposite of multiplication is division, and also remembering that whatever we do to one side we must do to both, we are going to divide both sides by two.

$$\frac{2x}{2} = \frac{24}{2}$$

$2 \div 2$ equals 1, so the side of the equation with the varible would reduce down to 1x. Using the identity Property, we know that 1x is going to equal x. We also that $24 \div 2 = 12$, so our reduced equation would look like this:

$$x = 12$$

which is also the solution to the equation. If we ever second guess our work, we can always put our solution for x into the original equation and see if it proves true

$$2 * (12) + 10 = 34$$
$$24 + 10 = 34$$
$$34 = 34$$

The math proves true, so in our original equation 2x + 10 = 34, we now know that:

$$x = 12$$

1.) $6x + 7 = 49$

2.) $4x + 9 = 25$

3.) $5 + 6x = 47$

4.) $4x + 9 = 9$

5.) $3x - 5 = 25$

6.) $2x - 8 = 10$

Name_____

Solving Two Step Equations

Solve for the variable in the following equations:

1.) 3 + 3x = 21

2.) 2x + 4 = 18

3.) 5 + 5x = 10

4.) 7x - 5 = 51

5.) 2x - 6 = 12

6.) 5x + 2 = 22

7.) 3x + 9 = 27

8.) 9 + 2x = 17

9.) 7x + 10 = 73

10.) 6 + 2x = 12

11.) 6x - 7 = 21

12.) 3x - 4 = 32