

One Step Equations

Addition and Subtraction

What is an equation?

- An equation is a mathematical sentence that contains an equal sign (=)

$$5 + 2 = 7$$



How do you SOLVE an equation?

To **solve** an **equation**, replace the **variable** with a number that makes the **equation** true. This number is a **solution**.

Using Substitution to determine the solution.

Is 29 the solution to the equation $x - 15 = 12$

$$x - 15 = 12$$

$$29 - 15 = 12 \quad \leftarrow \text{Substitute } x \text{ with } 29$$

$$14 \neq \text{ or } = 12$$

The equation is _____. 29 is _____ a
solution to $x - 15 = 12$

State whether the given number is a solution to the equation. (yes or no)

1) $y - 6 = 24$ $y = 18$ _____

2) $20 = p + 4$ $p = 16$ _____

3) $150 = k - 50$ $k = 200$ _____

4) $j + 30 = 70$ $j = 100$ _____

Solving Equations

How do you solve an equation?

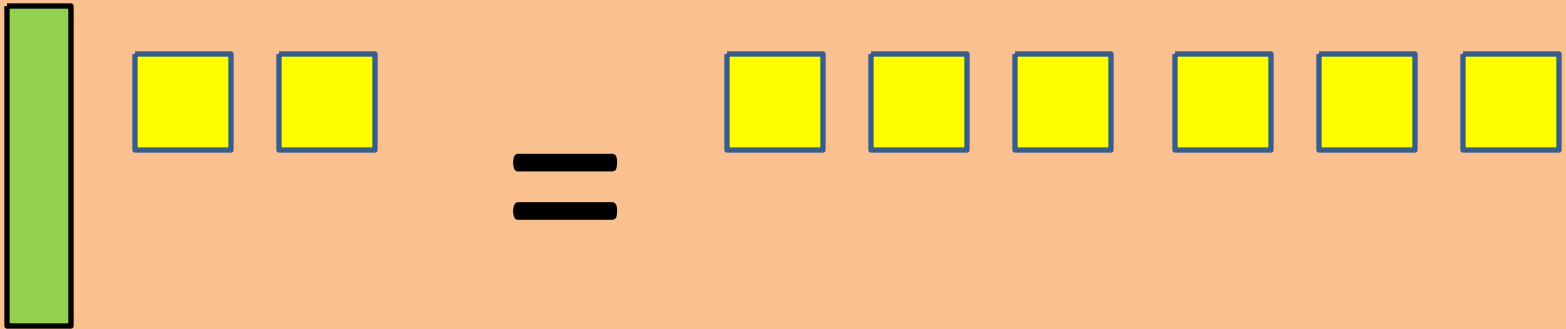
How do we determine the value of the variable?

****Algebra Tiles****

****inverse Operation****

Algebra Tiles

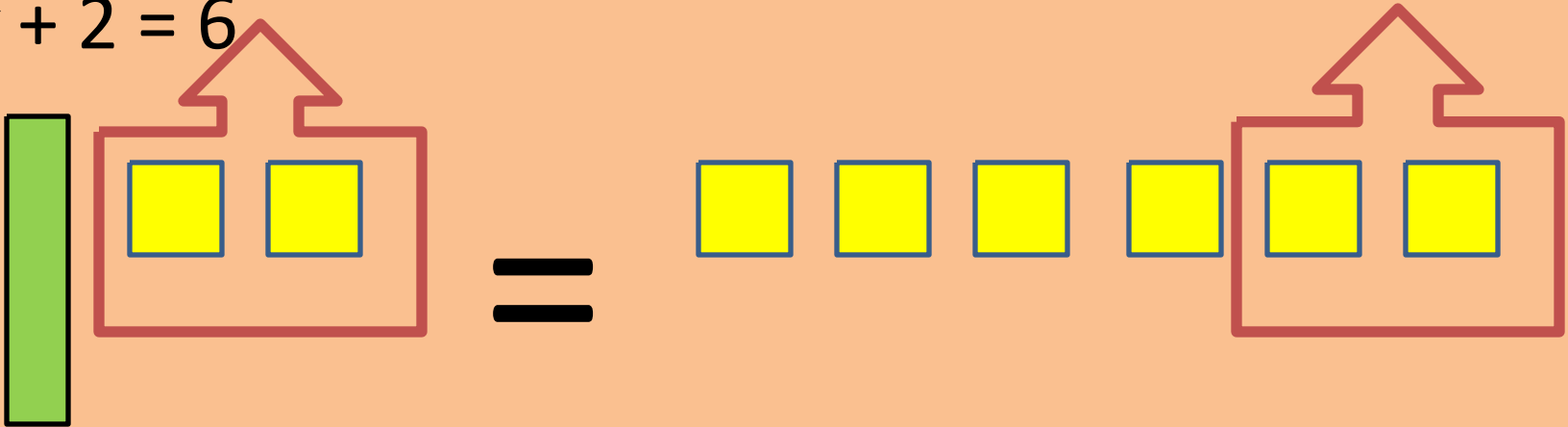
$$x + 2 = 6$$



MODEL THE EQUATION

Algebra Tiles

$$x + 2 = 6$$



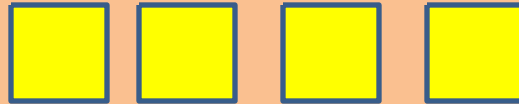
Isolate the variables

Algebra Tiles

$$x + 2 = 6$$



=



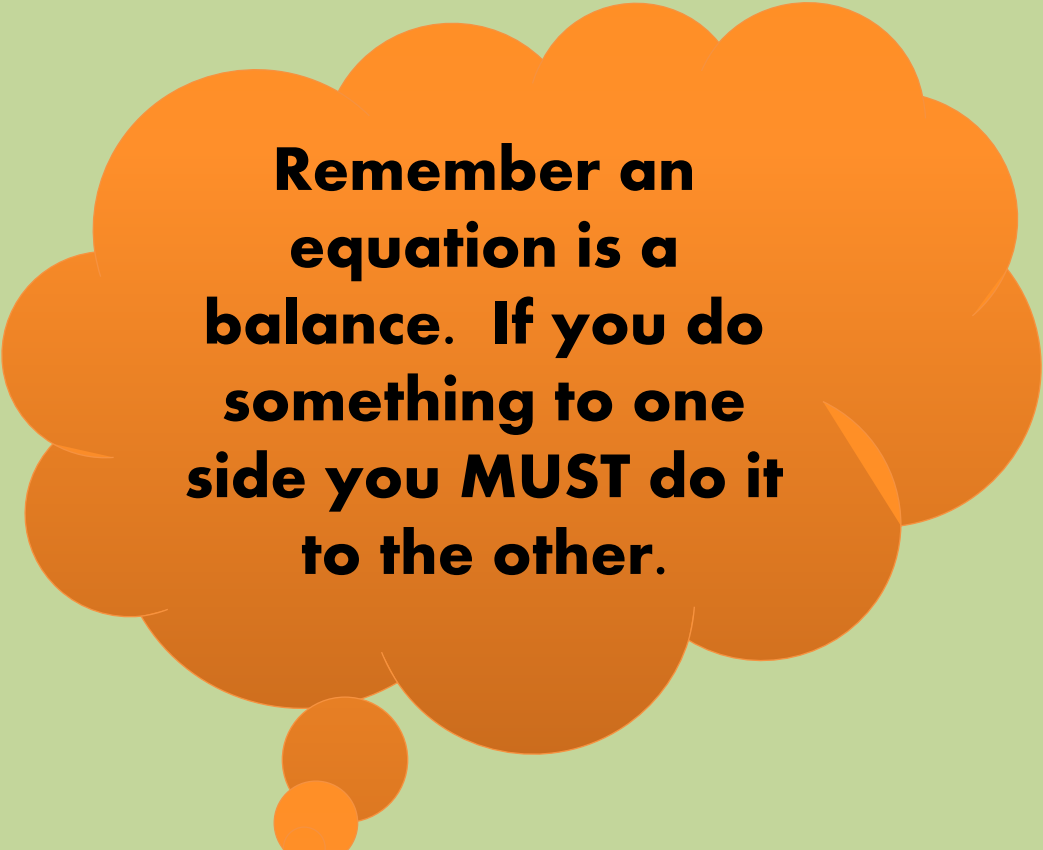
$$x = 4$$

Find the Solution

Inverse Operation

What is the *inverse* operation of addition?

$$\begin{array}{r} x + 2 = 6 \\ - 2 = -2 \\ \hline x = 4 \end{array}$$



Remember an equation is a balance. If you do something to one side you *MUST* do it to the other.

Solve each equation

1) $8 = 3 + h$ $h = \underline{\hspace{2cm}}$

2) $n - 10 = 5$ $n = \underline{\hspace{2cm}}$

3) $7 + k = 13$ $k = \underline{\hspace{2cm}}$

4) $m - 2 = 10$ $m = \underline{\hspace{2cm}}$

????????

- What about problems with larger numbers?
- What about problems with fractions?
- What about problems with decimals?

*You can use the SAME methods to solve those!

5) $33 = j + 17$ $j =$ _____

6) $y - 265 = 124$ $y =$ _____

7) $g - 1.4 = 6.3$ $g =$ _____

8) $5\frac{1}{2} + z = 9\frac{3}{4}$ $z =$ _____