

Problem of the Day: Simplify.

a) $4 - 7 = -3$ b) $-4 - 7 = -11$ c) $-4 + 7 = 3$

Plan for the Day: Finish integer notes (7th and 8th)

Practice integer quiz

Notes on solving one-step equations

More practice with solving one-step equations

Objective: We will be able to solve one-step equations.

Today is National Tooth Fairy Day!!

If two expressions are equal or equivalent (have an equal sign between them), then we can call it an equation.

$2 + 3 = 5$
 $3x + 12 = 36$
 $5 = 5$

coefficient
 variable
 constant

variable - a letter or symbol used to represent an unknown value

coefficient - number in front of a variable

constant - any number that does not have a variable with it

The goal of solving an equation is to isolate the variable (get the variable by itself).

By getting the variable by itself, we are determining what value makes the two sides of the equation equal for a true statement.

Isolating a variable is done by performing inverse (opposite) operations.

$\begin{array}{c} + \\ - \\ - \\ + \\ x \end{array}$

Solving an equation involves performing the same operation on both sides of an equation to keep the equation balanced.

Rules:

1. move the number on the same side as the variable
2. use the inverse (opposite) operation
3. do that to both sides of the equal sign
4. plug your answer back in to check for correctness

Example 1: $x + 3 = 5$

$2 + 3 = 5$
 $5 = 5$
 $\sqrt{x = 2}$

Example 2: $x - 7 = 8$

$15 - 7 = 8$
 $8 = 8$
 $\sqrt{x = 15}$

Example 3: $-2 + x = 9$

Example 4: $x + 4 = -1$

Yes you must show your work even when you can do it in your head. You won't always be able to do it in your head. By the end of this year, you will be able to solve equations that look like this.

Example 2: Solve.

$$2(x+3) + 3(x+7) = x+4+2$$

$$6x + 9 + 3x + 21 = x + 4 + 2$$

$$9x + 30 = x + 6$$

$$8x - 30 = 6 - 30$$

$$8x = -24$$

$$x = -3$$

Example 5: $3x = 15$

Example 6: $\frac{-1}{2}x = 8$

Example 7: $x \div 2 = 9$

Example 8: $x \div -4 = 1$