

Name _____ Period _____

Notes: Solving Equations

The goal of solving one step equations is to find a value for the variable

that makes the equation true.

To solve a one-step equation you need to isolate the variable (get it alone).

Non-isolated variable examples:

$$x - 5 = 7$$

$$11 = y - 4$$

$$a + \frac{1}{2} = -3$$

Isolated variable examples:

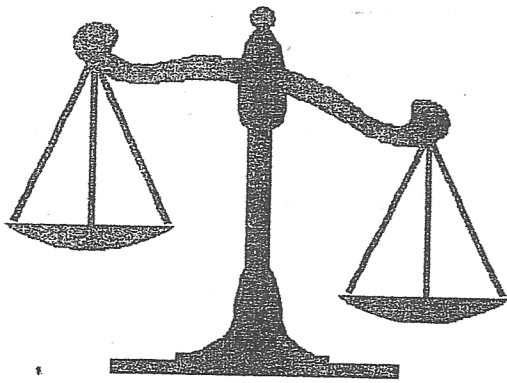
$$x = 15$$

$$-8 = z$$

$$e = 2.3$$

1.) To isolate a variable you use inverse operations to undo the operation in the equation.

2.) Then, what you do to one side of the equation you must do to the other side for balance.



Equations are always balanced.
What you do to one side you do to
the other side to keep the equation
equal.

Examples of inverse operations: addition & subtraction
multiplication & division

Solve: $x + 7 = 10$ the operation in the equation is addition

$x + 7 - 7 = 10 - 7$ the inverse of adding 7 is
subtracting 7

$$x + 0 = 3$$

DO THIS TO BOTH SIDES

$$x = 3$$

The variable is isolated

EQUATION SOLVED!

Solve: $-11 = y - 2$ the operation in the equation is subtraction

$-11 + 2 = y - 2 + 2$ the inverse of subtracting 2 is
adding 2, do this to BOTH SIDES.

$$\underline{-9 = y + 0}$$

$-9 = y$ The variable is isolated.

EQUATION SOLVED!

Check: $-11 = y - 2$
 $-11 = -9 - 2$
 $-11 = -11$ Yes!

Solve: $6x = 72$ the operation in the equation is multiplication

$\frac{6x}{6} = \frac{72}{6}$ the inverse of multiplying is division by 6

NOTICE THAT WE DIVIDE BOTH SIDES

$x = 12$ The variable is isolated.

Solve: $\frac{x}{4} = 7$ the operation in the equation is division

$4 \cdot \frac{x}{4} = 7 \cdot x$ the opposite of dividing is multiplication

NOTICE THST WE MULTIPLY BOTH SIDES

$x = 28$ the variable is isolated.