

7.2 (pg. 302) Solving Equations (+, -)

Equations may be true for some values and false for others. A **solution** of an equation is a value that makes the equation true.

Ex.: If the value of $x = 3$ for $x + 3 = 7$ Both sides are **NOT equal**.

$x = 4$ for $x + 3 = 7$ Both sides are **equal!**

$x = 5$ for $x + 3 = 7$ Both sides are **NOT equal**.

So, the value $x = 4$ is a solution of the equation $x + 3 = 7$

You can use ***inverse operations*** to solve equations. Inverse operations **"undo"** each other. Addition and subtraction are inverse operations.

Subtraction Property of Equality:

If you subtract the same number from each side of an equation, the two sides remain equal.

Example:

with numbers

Algebra



$$\begin{array}{r} 5 = 5 \\ -3 \quad -3 \\ \hline 2 = 2 \end{array}$$

$$\begin{array}{r} w + 2 = 3 \\ -2 \quad -2 \\ \hline w = 1 \end{array}$$



Addition Property of Equality:

If you add the same number to each side of an equation, the two sides remain equal.

Example:

using numbers

Algebra



$$\begin{array}{r} 5 = 5 \\ +3 = +3 \\ \hline 8 = 8 \end{array}$$

$$\begin{array}{r} w - 2 = 3 \\ +2 = +2 \\ \hline w = 5 \end{array}$$



Example:

Write the Problem	$4 + n = 29$
Use Inverse Operation	$4 + n - 4 = 29 - 4$
Do the Math, SHOW the Math!	$n = 25$
Rewrite Original Problem	$4 + n = 29$
Replace the Variable	$4 + (25) = 29$
Check the Solution	$29 = 29$