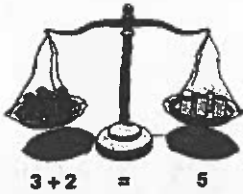


3.3 Solving One-Step Equations with Addition/Subtraction

EQ: How do we solve equations using inverse operations?

To solve an equation for a **VARIABLE**: Find the **VALUE** of the **VARIABLE**!
ISOLATE the **VARIABLE** on **ONE SIDE** of the equation by itself.

REMEMBER:



An equation is like a **balanced scale**!

Whatever you do to ONE side,
you must do to the OTHER!

INVERSE OPERATIONS: **OPPOSITE OPERATIONS** that **UNDO** each other.

What is the **INVERSE** of **ADDITION (+)**? Subtraction

What is the **INVERSE** of **SUBTRACTION (-)**? Addition

HOW TO SOLVE a ONE-STEP EQUATION:

STEP 1- HIGHLIGHT the number on the side of the equation with the variable that you will need to move to the other side. **INCLUDE** the sign in front of the number if there is one.

STEP 2- WHICH OPERATION relates the number to the variable?
WRITE that operation symbol above the number.

STEP 3- PERFORM the **OPPOSITE OPERATION** to **BOTH SIDES** of the equation.

***** IF** you end up with a **NEGATIVE VARIABLE**,
you must **MULTIPLY BOTH SIDES** by **-1** ***

STEP 4- CHECK your answer to make sure it is **TRUE** by replacing the variable in the original problem with your answer.

ADDITION
EXAMPLES

$$\begin{array}{r|l} K + 2 = 9 & \\ -2 & -2 \\ \hline K = 7 & \end{array}$$

$$\begin{array}{r|l} 3 - R = 10.4 & \\ -3 & -3 \\ \hline -R = 7.4 & \\ -1 & -1 \\ \hline R = -7.4 & \end{array}$$

ADDITION

EXAMPLES

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

$$\begin{array}{r} 8.2 + R \\ -8.2 \\ \hline R = -18.6 \end{array} = -10.4$$

~~+8.2~~
~~+8.2~~

UBTRACTION

EXAMPLES

$$\begin{array}{r} Z - 5 = 6 \\ +5 \quad +5 \\ \hline Z = 11 \end{array}$$

$$\begin{array}{r} -11.6 = -7.1 + R \\ +7.1 \quad +7.1 \\ \hline -4.5 = R \end{array}$$

UBTRACTION

EXAMPLES

$$\begin{array}{r} X - \frac{6}{8} = 16 \\ +\frac{6}{8} \quad +\frac{6}{8} \\ \hline X = 16\frac{6}{8} \\ X = 16\frac{3}{4} \end{array}$$

$$\begin{array}{r} -\frac{2}{4} - R = 11\frac{1}{4} \\ +\frac{2}{4} \quad +\frac{2}{4} \\ \hline -R = 11\frac{3}{4} \\ -1 \quad -1 \\ \hline R = -11\frac{3}{4} \end{array}$$

complete these ON YOUR OWN problems in your MATH NOTEBOOK!

1. $-1 = X + 3$

2. $\frac{1}{5} + y = -5\frac{3}{5}$

3. $W + 5.3 = -10.1$

4. $X - 1 = 4.1$

5. $\frac{1}{2} = -\frac{1}{2} + D$

6. $-10 - Z = -12$