

Lesson 2-3
Solving Variable Equations by Adding or Subtracting

True or False?

$4 + 3 = 7$

T

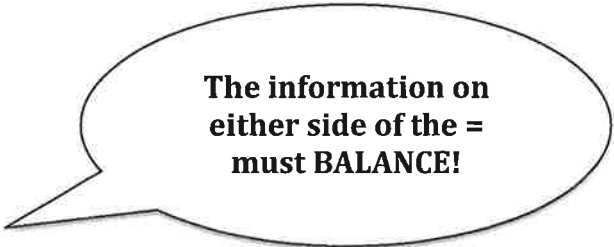
$5 + 1 = 4$

F

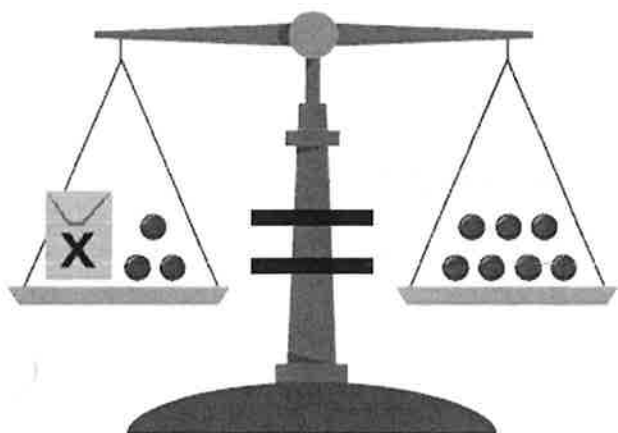
$4x + 2 = 10$

T \rightarrow If $x=2$

 F, If $x \neq 2$



When solving an equation with a variable, we can think of it as a balance.



Equation $x + 3 = 7$ $x =$ 4

Video Link: <https://www.youtube.com/watch?v=Ot-KSERw8Gc>

Solving a Variable Equation

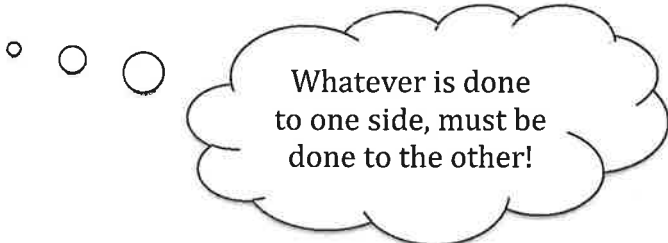
GOAL: Get the variable alone on one side of the equation (i.e. $x = 4 + 3$).

How? Move terms by using *inverse operations* to get the variable alone.

Inverse Operations

+ \leftrightarrow -

Ex) $x + 3 = 5$
 $-3 = -3$
 $x = 5 - 3$
 $x = 2$



Sample Problems:

~~1) $10 + n = 14$~~

$$\begin{array}{r} 2) \quad y - 8 = 16 \\ \quad \quad + 8 \quad + 8 \\ \hline \boxed{y = 24} \end{array}$$

$$\begin{array}{r} 3) \quad 9 + x = 20 \\ \quad \quad - 9 \quad - 9 \\ \hline \boxed{x = 11} \end{array}$$

$$\begin{array}{r} 4) \quad x + 13 = 30 \\ \quad \quad - 13 \quad - 13 \\ \hline \boxed{x = 17} \end{array}$$

$$\begin{array}{r} 5) \quad n - 5 = -3 \\ \quad \quad + 5 \quad + 5 \\ \hline \boxed{n = 2} \end{array}$$

$$\begin{array}{r} 6) \quad -8 + n = 12 \\ \quad \quad + 8 \quad + 8 \\ \hline \boxed{n = 20} \end{array}$$

$$\begin{array}{r} 7) \quad x - 6 = -55 \\ \quad \quad + 6 \quad + 6 \\ \hline \boxed{x = -49} \end{array}$$