Solve Addition Equations

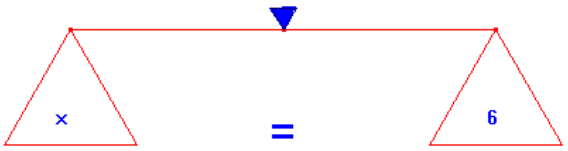
An *equation* is a statement of equality between two expressions. It consists of two sets of algebraic expressions separated by an equal sign

$$\underbrace{x + 7}_{\text{Expression}} = \underbrace{4 + 3}_{\text{Expression}}$$

Equation

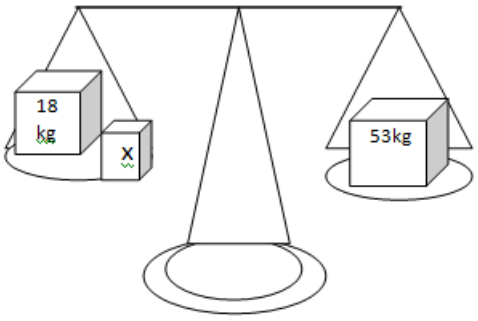
So an equation has a left-hand side, a right-hand side and an equal sign.

An equation behaves like a pair of balanced scales. The scales remain balanced as long as we do the same thing to both scales.

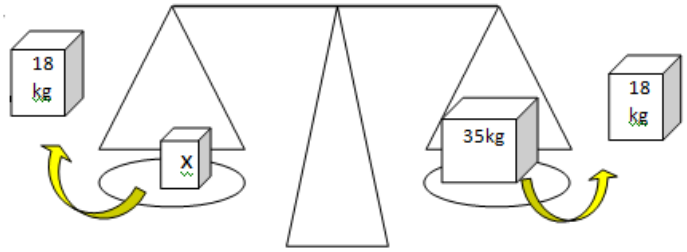


This suggests that to solve an equation, we can do the same thing to both sides of an equation.

An equation tells you that two quantities are equal. You can think of an equation as a balance scale where the values on each side of the scale balance are equal to each other. x + 18 = 53



When x is alone on one side of the scale, and the scale balances, the value on the other side is the solution of the equation.



So, you want to get the x alone on one side of the scale.

$$\begin{array}{rcl} x + 18 & = & 53 \\ -18 & & -18 \\ \hline x & = & 35 \end{array}$$

So, the solution to the equation x + 18 = 53 is x = 35. You can check the solution by replacing the variable in the equation with the value of x.

$$\begin{array}{rcl} x + 18 & = & 53 \\ 35 + 18 & = & 53 \\ \hline 53 & = & 53 \end{array}$$

Examples:

A- Solve and check.

1) h + 8 = 12
h +8 -8 = 12 -8
h + 0 = 4
h = 4

2) q + 6 = 15
q -6 + 6 = 15 -6
q - 0 = 9
q = 9

3) 12.4 = 8.6 + d
12.4-8.6 = d+8.6-8.6
3.8 = d + 0
3.8 = d