

## Two-Step Equations

Let's now look at a more complicated equation:

$$2x + 3 = 11$$

In this equation, you can see both multiplication and addition. To solve this type of equation, we have to undo these operations. To do that, we follow the reverse of the order of operations. Thus, we will remove the +3 first:

$$\begin{array}{r} 2x + 3 = 11 \\ -3 \quad -3 \\ \hline 2x \quad = 8 \end{array}$$

Now that the addition has been taken away from the equation, we finish by dividing both sides of the equation by 2:

$$\begin{array}{r} 2x = 8 \\ \div 2 \quad \div 2 \\ \hline x = 4 \\ \text{☺} \end{array}$$

It doesn't matter if the exercise has addition or subtraction, or if it has multiplication or division - we always add or subtract first, then multiply or divide. Again this is the opposite of the order of operations.

Let's try a few together. Solve each equation for the variable:

- $2x + 4 = 12$

- $18 = 3x - 6$

- $-6 + 2x = 24$

- $-24 = 8 - 4x$

Now, try a few on your own. Solve each equation for the variable:

**1.**  $8 + 4x = -16$

**2.**  $8x + 5 = 45$

**3.**  $-30 = -9x - 3$

**4.**  $-8 = 27 - 5x$

**5.**  $7 - 5x = -43$

**6.**  $10x + 11 = -19$

7.  $-40 = 8 - 6x$

8.  $-57 = -12 + 3x$

9.  $10 - x = 50$

10.  $-5x = 65$