

**What is a Literal Equation?**

An equation with two or more variables.

To solve a literal equation for one variable, use inverse operations.

addition & subtraction

multiplication & division

squares & square roots

**One Step Equations**Recall: Solve for  $x$ .

$$\begin{array}{r} x + 7 = -12 \\ -7 \quad -7 \\ \hline x = -19 \end{array}$$

Recall: Solve for  $y$ .

$$\begin{array}{r} y - 9 = 34 \\ +9 \quad +9 \\ \hline y = 43 \end{array}$$

Solve for  $a$ .

$$\begin{array}{r} a + b = c \\ -b \quad -b \\ \hline a = c - b \text{ or } a = -b + c \end{array}$$

Solve for  $d$ .

$$\begin{array}{r} d - e = f \\ +e \quad +e \\ \hline d = e + f \text{ or } d = f + e \end{array}$$

Recall: Solve for  $x$ .

$$\begin{array}{r} -6x = -30 \\ -6 \quad -6 \\ \hline x = 5 \end{array}$$

Recall: Solve for  $y$ .

$$\begin{array}{r} \frac{y}{-4} = 8 \rightarrow -4 \left( \frac{y}{-4} \right) = -4 \cdot 8 \\ \hline y = -32 \end{array}$$

Solve for  $r$ .

$$\begin{array}{r} C = 2\pi r \\ 2\pi \quad 2\pi \\ \hline \frac{C}{2\pi} = r \text{ or } r = \frac{C}{2\pi} \end{array}$$

Solve for  $m$ .

$$\begin{array}{r} D = \frac{m}{v} \rightarrow v \cdot D = v \left( \frac{m}{v} \right) \\ \hline vD = m \end{array}$$

## Two Step Equations

Solve for  $w$ . Get  $w$  by itself

$$P = 2l + 2w$$

$$\frac{-2l \quad -2l}{-2l \quad -2l}$$

$$\frac{P - 2l}{2} = \frac{2w}{2}$$

$$\frac{P - 2l}{2} = w \text{ or } w = \frac{P - 2l}{2}$$

$$\text{or } w = \frac{P}{2} - l$$

Solve for  $b$ . Get  $b$  by itself.

$$A = \frac{1}{2}bh$$

Clear the fraction first.

$$2 \cdot A = 2 \left( \frac{1}{2} \right) bh$$

$$\frac{2A}{h} = \frac{bh}{h}$$

$$\frac{2A}{h} = b \text{ or } b = \frac{2A}{h}$$

Solve for  $l$ . Get  $l$  by itself!

$$S = \pi r l + \pi r^2$$

$$\frac{-\pi r^2 \quad -\pi r^2}{-\pi r^2 \quad -\pi r^2}$$

$$\frac{S - \pi r^2}{\pi r} = \frac{\pi r l}{\pi r}$$

$$\frac{S - \pi r^2}{\pi r} = l$$

or

$$\frac{S}{\pi r} - \pi r = l$$

$$l = \frac{S - \pi r^2}{\pi r}$$

or

Solve for  $w$ . Get  $w$  by itself!

$$S = \frac{w - 10e}{m}$$

Clear the fraction first.

$$m \cdot S = \frac{m(w - 10e)}{m}$$

$$\begin{array}{r} mS = w - 10e \\ +10e \quad +10e \\ \hline \end{array}$$

$$mS + 10e = w$$

or

$$w = mS + 10e$$