

Notes: Solving Literal Equations

Solve the following equations for x and answer the question below it.

$\begin{array}{r} x - 6 = -12 \\ +6 \quad +6 \\ \hline x = -6 \end{array}$	$\begin{array}{r} 2x = 26 \\ \div 2 \quad \div 2 \\ \hline x = 13 \end{array}$	$\begin{array}{r} 5x - 8 = 42 \\ +8 \quad +8 \\ \hline 5x = 50 \\ x = 10 \end{array}$
<p>What steps did you take to isolate the x?</p> <p>Add 6 to both sides</p>	<p>What steps did you take to isolate the x?</p> <p>divide both sides by 2</p>	<p>What steps did you take to isolate the x?</p> <p>add 8 to both sides then divide by 5</p>

Use the same process to solve for x in the literal equations below.

$\begin{array}{r} x - c = m \\ +c \quad +c \\ \hline x = m + c \end{array}$	$\begin{array}{r} gx = A \\ \div g \quad \div g \\ \hline \end{array}$	$\begin{array}{r} bx - y = z \\ +y \quad +y \\ \hline \frac{bx}{b} = \frac{z+y}{b} \\ x = \frac{z+y}{b} \end{array}$
<p>What steps did you take to isolate the x?</p> <p>Add c to both sides</p>	<p>What steps did you take to isolate the x?</p> <p>divide both sides by g</p>	<p>What steps did you take to isolate the x?</p> <p>add y to both sides then divide by b</p>

<p>Solve for b:</p> $\begin{array}{r} ax + b = c \\ -ax \quad -ax \\ \hline b = c - ax \end{array}$	<p>Solve for y:</p> $\begin{array}{r} 2x - y = z \\ -2x \quad -2x \\ \hline -1(-y = z - 2x) \\ y = 2x - z \end{array}$	<p>Solve for c:</p> $\begin{array}{r} F = \frac{abcd}{abd \quad abd} \\ c = \frac{F}{abd} \end{array}$
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Solve for m:

$$2 \left(K = \frac{1}{2} m v^2 \right)$$

$$\frac{2K}{v^2} = \frac{m v^2}{v^2}$$

$$m = \frac{2K}{v^2}$$

Solve for m_2 :

$$\left(f = \frac{g m_1 m_2}{d_2} \right) d_2$$

$$\frac{d_2 \cdot f}{g m_1} = \frac{g m_1 m_2}{g m_1}$$

$$m_2 = \frac{d_2 f}{g m_1}$$

Solve for h:

$$A = 2\pi r^2 + 2\pi r h$$

$$\frac{A - 2\pi r^2}{2\pi r} = \frac{2\pi r h}{2\pi r}$$

$$\frac{A - 2\pi r^2}{2\pi r} = \frac{2\pi r h}{2\pi r}$$

$$h = \frac{A - 2\pi r^2}{2\pi r}$$

Solve for B:

$$\frac{Ax + By = C}{-Ax \quad -Ax}$$

$$\frac{By = C - Ax}{y \quad y}$$

$$B = \frac{C - Ax}{y}$$

Solve for w:

$$\frac{P}{2} = \frac{2(l+w)}{2}$$

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

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

Solve for F:

$$9 \left(C = \frac{5}{9} (F - 32) \right)$$

$$9C = 5(F - 32)$$

$$9C = 5F - 160$$

$$9C + 160 = 5F$$

$$F = \frac{9C + 160}{5}$$

Solve for R:

$$\frac{H = .24IRt}{.24It \quad .24It}$$

$$R = \frac{H}{.24It}$$

Solve for b:

$$4b - 5 = -t + b$$

$$3b = -t - 5$$

$$b = \frac{-t - 5}{3}$$

Solve for y

$$\left(\frac{y+a}{3} = c \right) 3$$

$$y+a = 3c$$

$$y = 3c - a$$

Solve for x:

$$4x + b = 2x + c$$

$$2x + b = c$$

$$2x = c - b$$

$$x = \frac{c - b}{2}$$

Solve for h:

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

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

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

Solve for y

$$10x - 4y = 20$$

$$\frac{-4y = 20 - 10x}{-4} = \frac{20 - 10x}{-4}$$

$$y = \frac{20 - 10x}{-4}$$

$$y = \frac{5}{2}x - 5$$