9. Twice Bill's number added to 17 is 7. What is Bill's number?

Literal Equations Notes

A **literal equation** is an equation that has terms represented by letters. Formulas are the best examples of literal equations. In many occupations, especially chemistry and physic based jobs, it is important to solve for a different variable than the one that is on the left side of the equal sign, so we must learn how to manipulate (solve) for any variable represented in the equation.
They are solved the same way as multi-step equations, **undo the operations**

Relate to what we know:

Solve these non-literal equations for the variable x.

Example 1:

$\frac{3}{21} = \frac{21x}{21}$

$\frac{1}{7} = \frac{3}{21} = x$

$x = \frac{1}{7}$

Example 2:

$5x + 4 = 29$

$-4 \quad -4$

$\frac{5x}{5} = \frac{25}{5}$

$x = 5$

Literal Equations:

Solve these literal equations for the specified variable.

Example 1:

$\frac{D}{T} = \frac{RT}{T}$; solve for *R*

$\frac{D}{T} = R$

Example 2:

$Ax + y = C$; solve for x

$-y \quad -y$

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

$x = \frac{C-y}{A}$

Example 3:

$V = lwh$; solve for *w*

$\frac{V}{lh} = \frac{lwh}{lh}$

$\frac{V}{lh} = w$

Example 4:

$2A = \frac{bh}{2} \cdot 2$; solve for *h*

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

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