

1. Literal Equations (Changing the subject of the formula)

<p>Definition Literal equations are equations with two or more variables</p>	<p>Facts Formulas are literal equations Literal equations are solved the same way as equations by using inverse operations</p>
<p>Literal Equations</p>	
<p>Examples $d = a$ $A = \frac{1}{2}bh$ $m + n = 3p$</p>	<p>Non Examples $-4x = 20$ $10 = \frac{1}{3}(y - 6)$ $n + 5 = 2n - 14$</p>

Solve Literal Equations

A literal equation is an equation with more than one variable.
To solve a literal equation means to isolate the indicated variable.
We can use inverse operations to isolate the variable.

- If necessary, simplify each side of the equation by combining like terms.
- Isolate the indicated variable -
 - Use the opposite operation of addition or subtraction to move any constants or variables to the other side.
 - Use the opposite operation of multiplication or division to eliminate the coefficient.

Examples:

Solve for x

$$3x + 4y = 7$$

$$3x = 7 - 4y$$

$$x = \frac{7 - 4y}{3}$$

Solve for F

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

$$\frac{9}{5}C = F - 32$$

$$\frac{9}{5}C + 32 = F$$

$$F = \frac{9}{5}C + 32$$

Example: Solve for L in $P = 2L + 2W$

$$2L + 2W = P$$

$$2L = P - 2W$$

$$\frac{2L}{2} = \frac{P - 2W}{2}$$

$$\therefore L = \frac{P - 2W}{2}$$

Practice Exercise

Solve for the given unknown

- $v = u + at$ find a
- $s = \frac{1}{2}(u + v)t$ find u
- $v = \pi r^2$ find r
- $v = \pi r^2 h$ find h
- $y = mx + c$ find m
- $T = a + (n - 1)d$ find d
- $v = \frac{4}{3}\pi r^3$ find r
- $A = P(1 + i)^n$ find i
- $S_n = \frac{n}{2}[2a + (n - 1)d]$ find a