Manipulating Algebraic Equations

A literal equation is an equation involving two or more variables. Formulas are special types of literal equations. To transform a literal equation, you solve for one variable in terms of the others.

1. Express the height *h* of a triangle in terms of the area *A* and the *b*.

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

2. Express the radius r of a cylinder in terms of the volume V and the height h.

$$V = \pi r^2 h$$

- 3. The formula $C = \frac{5}{9}(F-32)$ gives the Celsius temperature in terms of the Fahrenheit temperature. Transform the formula to find F in terms of C.
- 4. You can use the number of chirps a cricket makes in one minute to estimate the outside temperature in degrees Fahrenheit.

Transform the formula $F = \frac{n}{4} + 37$ to find the number of chirps a cricket makes in a minute in terms of a given temperature.

Try A Few!

Solve each of the following literal equations for the given variable:

Solve for t:

$$A = P(1+rt)$$

Solve for x:

$$ax+b=cx-d$$

Solve for v:

$$K = \frac{1}{2}mv^2$$

Solve for x:

$$\frac{ax}{b} + \frac{cx}{d} = 3$$

Solve for *b*:

$$p = t\sqrt{r} - y$$

Solve for g:

$$\frac{1}{2}g + 9 = f$$

Solve for x:

$$7x + 2a = 3x + 5a$$

Solve for *r*:

$$V = \frac{4}{3}\pi r^3$$

Manipulating Algebraic Equations

A literal equation is an equation involving two or more variables. Formulas are special types of literal equations. To transform a literal equation, you solve for one variable in terms of the others.

1. Express the height *h* of a triangle in terms of the area *A* and the *b*.

$$\mathbf{Z} \cdot A = \frac{1}{2}bh \cdot \mathbf{Z}$$

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

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

2. Express the radius *r* of a cylinder in terms of the volume *V* and the height *h*.

$$V = \pi r^2 h$$
Th

3. The formula $C = \frac{5}{9}(F-32)$ gives the Celsius temperature in terms of the Fahrenheit temperature. Transform the formula to find F in terms of C.

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

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

4. You can use the number of chirps a cricket makes in one minute to estimate the outside temperature in degrees Fahrenheit.

Transform the formula $F = \frac{n}{4} + 37$ to find the number of chirps a cricket makes in a minute in terms of a given temperature.

$$F = \frac{n}{4} + 37$$

Try A Few!

Solve each of the following literal equations for the given variable:

Solve for t:

$$A = P(1+rt)$$

$$\frac{A-P}{PC} = t$$

Solve for x:

$$ax + b = cx - d$$

$$\frac{b+d}{c-a} = X$$

Solve for v:

$$K = \frac{1}{2}mv^2$$

$$\int \frac{2K}{m} = V$$

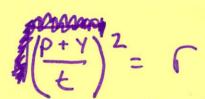
Solve for x:

$$\frac{ax}{b} + \frac{cx}{d} = 3$$

$$X = \frac{3db}{da+bc}$$

Solve for to ::

$$p = t\sqrt{r} - y$$



Solve for g:

$$\frac{1}{2}g + 9 = f$$

Solve for x:

$$7x + 2a = 3x + 5a$$

$$X = \frac{3}{4} a$$

Solve for r.

$$3 \int \frac{3V}{4\pi} = C$$