

Solving Literal Equations

Objectives:

...to solve literal equations for a given variable

Assessment Anchor:



Not Applicable

NOTES

To solve a literal equation:

1. Locate the variable that you want to solve for
2. Follow the rules for solving equations to get that variable all by itself

EXAMPLES

- 1) **Solve for x:**instructions for what to solve for

$$x + b = a$$

.....original equation

$$\begin{array}{r} \textcircled{x} + b = a \\ -b \quad -b \\ \hline \end{array}$$

.....locate what you are solving for
.....subtract "b" on both sides

$$\textcircled{x = a - b}$$

.....simplify the equation

- 2) **Solve for d:**instructions for what to solve for

$$cd = 10$$

.....original equation

$$\begin{array}{r} \textcircled{cd} = 10 \\ \hline c \quad c \end{array}$$

.....locate what you are solving for
.....divide both sides by "c"

$$\textcircled{d = \frac{10}{c}}$$

.....simplify the equation

Solving Literal Equations

3) Solve for a:

$$4a - b = c$$

$$\textcircled{4}a - b = c$$

$$\frac{\quad + b \quad + b}{\quad}$$

$$\frac{4a = c + b}{4 \quad 4}$$

$$\textcircled{\frac{a = c + b}{4}}$$

.....instructions for what to solve for

.....original equation

.....locate what you are solving for

.....add "b" to both sides

.....simplify the equation

.....divide both sides by 4

.....simplify the equation

4) Solve for k:

$$k + 20 = t$$

5) Solve for v:

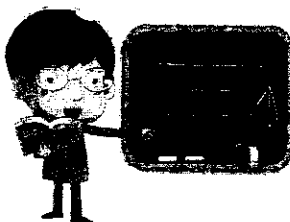
$$\frac{v}{5} = w$$

6) Solve for m:

$$2m - p = 11f$$

7) Solve for y:

$$xyz + a = 10$$



"This idea of solving a literal equation can help us to manipulate formulas (like $P=2L+2W$). It also will be useful when we discuss special forms of two-variable equations."

Literal Equations – Worksheet #3



SHOW ALL WORK!!



Formulas can be manipulated through the process of solving literal equations.

1) Solve for b: $A = bh$ (Area of a parallelogram)

2) Solve for h: $A = \frac{1}{2}bh$ (Area of a triangle)

3) Solve for d: $C = \pi d$ (Circumference of a circle)

4) Solve for L: $P = 2L + 2W$ (Perimeter of a rectangle)

5) Solve for t: $D = rt$ (Linear motion)

Literal Equations – Worksheet #3

Solve each of the following equations for the variable “y”.

6) $2y = 4x + 10$

9) $-5y + 15 = 3x$

7) $2x + 4y = -22$

10) $18 = 3y - 12x$

8) $8y - 4x = 2$

11) $19 = 7x + y$