HA1

Literal Equations and Formulas

Equations often contain more than one variable. At times we will need to solve these equations for one specific variable.

****** The answers to these problems will NOT be Numbers

Examples:

$3x - 4y = 7 \ for \ y$

$-3x \quad -3x$

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

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

$\frac{k-2}{5} = 11j \ for \ k$ ·5

$k - 2 = 55j$

$+2 \quad +2$

$k = 55j + 2$

Often it is easiest to take advantage of parenthesis and multiplication by moving multiple variables at once:

$28 = t(r+4) \ for \ t$

$\frac{28}{(r+4)} = \frac{t \cdot (r+4)}{(r+4)}$

$\frac{28}{r+4} = t$

Using the distributive property. Get all terms with that variable to one side:

$2m - t = sm + 5 \quad for\ m$

$+t \quad -sm$

$2m = sm + 5 + t$

$-sm \quad -sm$

$2m - sm = 5 + t$

$m(2 - s) = 5 + t$

$(2 - s) \quad (2 - s)$

$$m = \frac{5 + t}{2 - s}$$

$3x - 2y = xz + 5 \quad for\ x$

$3x - xz = 5 + 2y$

$x(3 - z) = 5 + 2y$

$$x = \frac{5 + 2y}{3 - z}$$

Fomula aka Literal Equation

The formula for the volume of a rectangular prism is $V = lwh$,

$where\ l\ is\ length, w\ \ is\ width, and\ h\ is\ height.$

Solve the formula for w.

$$\frac{V}{lh} = \frac{lwh}{lh} \qquad w = \frac{V}{l \cdot h}$$

Find the width of a prism that has a volume of 79.04 cubic cm, a length of 5.2 cm, and a height of 4 cm

$$w = \frac{79.04}{(5.2)(4)} =$$