Pre-Algebra

Rewriting Equations and Formulas

Goal: to solve literal equations and formulas for a variable.

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A literal equation is an equation in which the coefficients and constants have been replaced by letters.

Ex: $ax + c = b$

A formula is a specific rule for relating 2 variables

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

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When you solve a literal equation, you can use the result to solve any equation that has the same form as the literal equation.

Ex: $ax - b = c$, solve for x

$+b \quad +b$

$\frac{ax}{a} = \frac{c+b}{a}$

$x = \frac{c+b}{a}$

Then, use the solution to solve $6x - 1 = 17$

$x = \frac{17+1}{6} = \frac{18}{6} = 3$

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An equation in 2 or more variables can be rewritten so that one variable is given in terms of the other variable(s).

Ex: $9x - 3y = 21$, for y

$-9x \quad -9x$

$\frac{-3y}{-3} = \frac{21-9x}{-3}$

$y = \frac{21-9x}{-3} = -7+3x$

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Perimeter Formula for a rectangle:

$P = 2l + 2w$, solve for length.

$-2w \quad -2w$

$\frac{P-2w}{2} = \frac{2l}{2}$

$\frac{P-2w}{2} = l$

$28 - 2(12) = 4$

$\frac{4}{2} = 2$

If a rectangle has a width of 12 cm and a perimeter of 28 cm, what is the length?

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2. $A = \frac{1}{2}bh$, solve for b.

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

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

If the area is 75 square meters and the height is 11.3 meters, what is the base?

$\frac{1}{2}b \approx 13.27$

$b \approx 3.3\ m$

$b = \frac{2 \cdot 75}{11.3}$

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Hwk:

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Quiz tomorrow

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