Lesson 1.3 - Using Formulas to Solve Story Problems

What is a Formula?

- A formula is an equation that describes how two or more variables are related.

For Example:

d=rt

This formula tells us how Rate, Time, and Distance are related.

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Before we can use the formulas, we need to pick out what we need from the story problem. So let's practice translating.

Ex. 1:

Translate the verbal description into a mathematical formula.

The Area A of a circle is the product of the number $\underline{\pi}$ (pi) and the square of its radius.

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Ex. 2:

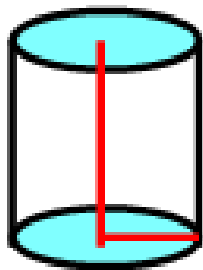*Translate the verbal description into a mathematical formula.*

The daily cost C of manufacturing computers is $175 times the number of computers manufactured, x, plus $7000.

Ex. 3:

Translate the verbal description into a mathematical formula.

The volume **V** of a right circular cylinder is the product of the number __π__ (pi), the square of its radius **r**, and its height **h**.

Solving for a Variable:

Solving for a Variable means we need to get the variable by itself on one side of the equation with all other variables and constants on the other side.

Ex:

$4x - 3y = 7$, solve for y

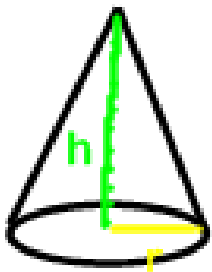# Lesson 1.3 - Using Formulas to Solve Story Problems

Ex 4:

The volume V of a cone is given by the formula, where r is the radius and h is the height of the cone.

$$V = \frac{1}{3}\pi r^2 h$$

a.) Solve for h

b.) Use the result from part a.) to find the height of the cone if its volume is 50 pi cubic feet and its radius is 5 feet.

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Look at pages 81-82.

This is where most of the formulas you will use are listed.

Any questions with regard to the formulas here?

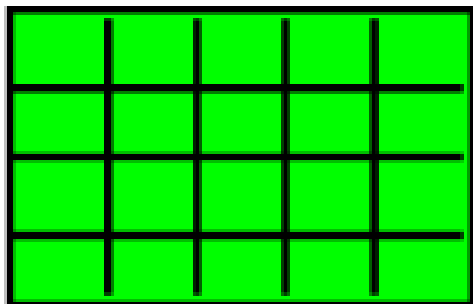## Lesson 1.3 - Using Formulas to Solve Story Problems

Ex 5:

The formula $Y = C + bY + I + G + N$ is a model used in economics to describe the total income of an economy. In the model, Y is income, C is consumption, I is investment in capital, G is government spending, N is net exports, and b is a constant. Solve for Y.

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Ex 6:

The perimeter of a rectangular picture window is 466 inches.
The length of the window is 55 inches more than the width.
Find the dimensions of the window.

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Homework:

Pg 86-89: # 7-10 all, 11, 14, 19, 27-31 all, 33, 43, 45, 47-50 all

(18 Problems)