Algebra 1 2.1

Translate sentences into equations

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x, y variable

formula

sum $+$

product $\times$

difference $-$

quotient $\div$

equals $=$ is

Equation describing relationship

$A = b \cdot h$ $C = \pi d$

activity: matching

Why?

- The Daytona 500 is widely considered to be the most important event of the NASCAR circuit. The distance around the track is 2.5 miles, and the race is a total of 500 miles. We can write an equation to determine how many laps it takes to finish the race.

$2.5(?) = 500$

$\frac{2.5n}{2.5} = \frac{500}{2.5}$

$n = 200$ laps

Example 1 Translate Sentences into Equations

PT

Translate each sentence into an equation.

a. Seven times a number squared is five times the difference of k and m.

$7n^2 = 5(k-m)$

b. Fifteen times a number subtracted from 80 is 25.

$15a - 80 = 25$

$80 - 15a = 25$

$15(n - 80) = 25$

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1A. Two plus the quotient of a number and 8 is the same as 16.

1B. Twenty-seven times k is h squared decreased by 9.

~~activ: I have/ who has~~
and/or matching

A rule for the relationship between certain quantities is called a **formula**. These equations use variables to represent numbers and form general rules.

Example 3 Write a Formula

GEOMETRY **Translate the sentence into a formula.**

The area of a triangle equals the product of $\frac{1}{2}$ the length of the base and the height.

$A = \left(\frac{1}{2}\right)(b)(h)$

$A = \frac{1}{2} \cdot b \cdot h$ $\quad A = \frac{1}{2}bh$

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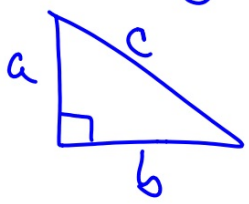
3. GEOMETRY Translate the sentence into a formula.
In a right triangle, the square of the measure of the hypotenuse c is equal to the sum of the squares of the measures of the legs, a and b.

$$c^2 = a^2 + b^2$$



Example 4 Translate Equations into Sentences

Translate each equation into a sentence.

a. $6z - 15 = 45$

difference of $6z$ and 15 is 45

b. $y^2 + 3x = w$

↓ + ↓

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4A. $15 = 25u^2 + 2$

4B. $\frac{3}{2}r - t^3 = 132$

When given a set of information, you can create a problem that relates a story.

Example 5 Write a Problem

Write a problem based on the given information.

t = the time that Maxine drove in each turn; $t + 4$ = the time that Tia drove in each turn; $2t + (t + 4) = 28$