Algebra 1   2.1

Translate sentences into equations ✔

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variable x, y, b $\cancel{5}$ X z $\cancel{\oslash}$

formula ←

~~describes~~ *describes*   relationship

sum $+$

product $\times$

difference $-$

quotient $\div$

equals $=$

$$6 = \frac{12}{2} \qquad 2 \cdot x = 10$$

activity: I have who has

- 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.

$$2.5 x = 500 \qquad 2.5 B = 500$$
$$2.5 n = 550$$

Example 1 Translate Sentences into Equations

Translate each sentence into an equation.

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

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

$$7n^2 =$$

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

$$15 \cdot (80 - n) = 25$$

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$$2 + \frac{n}{8} = 16 \qquad n \div 8$$

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.

$$27k = h^2 - 9$$

activ: I have/ who has

$$5(n+3)$$

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.

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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.

Example 4 Translate Equations into Sentences

Translate each equation into a sentence.

a. $6z - 15 = 45$

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

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; $2t + (t + 4) = 28$