Math 9 – Unit 4: Word Problems

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Lesson #1: Words to Equations

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Learning Goal: We are learning to convert sentences into mathematical expressions and equations.

Given the following mathematical operations, write down as many words that relate to it as you can:

\+ adding, plus, addition, sum, more than, increased by

\− less than, subtract, take away, decreased by, minus, negative, difference

× times, multiply, product, double (×2)

÷ quotient, divide, half (÷2)

1. Convert each to an expression:

a) the product (times) of a number (x) and 12

$12x$

b) 7 less than x

$x - 7$

c) the quotient of 77 and 7

$\frac{77}{7}$

d) half of 24

$\frac{24}{2}$

2. Convert each to an equation:

a) x decreased by 9 is (=) 7

$x - 9 = 7$

b) r increased by 10 is 17

$r + 10 = 17$

c) twice v is equal to 28

$2v = 28$

d) a number squared is 8

$x^2 = 8$

3. Convert each sentence to an expression with a variable. Use a "LET" statement to define the variables.

a) There are 16 more white keys than black keys on a piano.

Let: white keys = $x+16$

black keys = x

b) Jane is 6 years younger then her sister Melanie.

Let Melanie's age = x

Jane's age = $x-6$

c) Michael has assists three more than twice the amount of goals.

Let assists = $2x+3$

goals = x

d) Japan's population is 3.5 times that of Canada.

Let Canada = x

Japan = $3.5x$

e) When Erica bikes to work, it takes 15 minutes less than three times the time it takes to drive.

Let biketime = $3x-15$

drive time = x

Success Criteria:

- I can identify the variable that I am trying to solve
- I can rearrange a formula by using inverse operations
- I can use the rearranged formula to answer the question