Math 9 – Unit 4: Word Problems

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Lesson #2: 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:

\+ addition, add, sum, plus, increased by, positive, together, perimeter, more than, older

\− subtraction, subtract, minus, decreased by, less than, negative, difference, younger

× multiplication, times, multiply, product, twice, double,

÷ divide, quotient, division, fraction, half, ratio

1. Convert each to an expression:

a) the product of a number (variable) and 12

$12x$ or $12n$

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 black keys = x

white keys = $x + 16$

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

Let: Melanie = x

Jane = $x - 6$

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

$2x$

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: driving = x

biking = $3x - 15$

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