

1.4 Solving 1-Step Equations

In order to solve an equation that is in the form of a WORD PROBLEM, you have to be able to translate it. Word problems are also known as Applications.

* The word "IS" in the English language is often used to suggest an equal sign (=) *

Words/Phrases for Basic Operations

<u>Addition (+)</u>	<u>Subtraction (-)</u>	<u>Multiplication (•)</u>	<u>Division ($\frac{\text{fraction}}{\text{bar}}$)</u>
<u>plus</u>	<u>minus</u>	<u>times</u>	<u>divided (by)</u>
<u>Sum</u>	<u>Difference</u>	<u>Product</u>	<u>Quotient</u>
<u>increased (by)</u>	<u>decreased (by)</u>	<u>multiply (by)</u>	<u>per</u> - - -

* more than → * less than

* when using "more than" or "less than" → order is SWITCHED when written as a math phrase

ie: 7 more than 3 → $3 + 7$ 6 less than 10 → $10 - 6$

Example 2: Write an algebraic expression for each phrase.

a.) 4 more than x

$$(x + 4)$$

b.) the difference of 5 and m

$$(5 - m)$$

c.) two times a number

$$(2n) \text{ or } 2(n)$$

d.) the quotient of a number and 3

$$\left(\frac{n}{3}\right)$$

e.) 7 minus the product of a number and 8

$$7 - 8n$$

f.) the sum of one third of a number and one half of another number

$$\frac{1}{3}n + \frac{1}{2}p$$

Example 3: Write a phrase for each expression.

a.) $x - 9$

- x minus 9
- The difference of x and 9
- x decreased by 9
- 9 less than x

b.) $\frac{8}{b}$

- 8 divided by b
- The quotient of 8 and b.

2 operations

c.) $a \cdot b + 2$

- the product of a and b plus 2
- 2 more than the product of a and b.
- the sum of the product of a and b and 2

Example 4: Define a variable and write an equation for each sentence or situation.

- a.) Four less than a number is seven. $n = \text{a number}$

$$n - 4 = 7$$

- b.) The total income from selling tickets to a school play for \$5 each.

$$t = \text{\# of tickets} \quad i = \text{total income} \quad i = 5t$$

- c.) The amount in a bag of quarters relates to the number of quarters in the bag. How much money is there when there are 22 quarters in the bag?

$m = \text{amount of money}$

$$22(.25) = m$$

$$\text{or } (.25) \frac{m}{.25} = 22(.25)$$

$$m = 5.5$$

There is \$5.50 in quarters in the bag.