

1-7-19

Aim: SWBAT translate phrases into mathematical expressions.

HW: Finish Packet Pages 2 - 5

Quiz Friday or Monday

Do Now: Write your name on your packet.

### KEYWORDS AND PHRASES

|                            | Addition (+)   | Subtraction (-)   | Multiplication (•)  | Division (÷)   |
|----------------------------|--|---|---|--|
|                            | total<br>plus<br>altogether<br>add<br>combine<br>in all<br>increased by<br>perimeter | subtract<br>minus<br>decreased by<br>left over<br>remain      | multiplied by<br>product<br>times<br>double/triple<br>of<br>per<br>each<br>area | quotient<br>divided by<br>separate<br>equal groups<br>equal parts<br>split<br>half |
| <b>Order Changes</b>       | more than<br>is added to   | less than<br>taken away from<br>subtracted from<br>fewer than |   |  |
| <b>Wrap in Parentheses</b> | sum  | difference  |   |  |

| Equals (=)  |
|---|
| is<br>is equal to<br>is the same as<br>is equivalent to |

| Is Less Than<br><             | Is Greater Than<br>>            | Is Less Than Or Equal To<br>≤                             | Is Greater Than Or Equal To<br>≥                              |
|-------------------------------|---------------------------------|---|---|
| is less than<br>is fewer than | is greater than<br>is more than | is less than or equal to<br>is no more than<br>is at most | is greater than or equal to<br>is at least<br>is no less than |

Aim: SWBAT translate phrases into mathematical expressions.

### Translating When a Variable Is Assigned

- Identify the key words
- Translate into the order that the keywords require using the assigned variable
- Expressions will contain one or more operations {+, -, ·, or ÷ (use a fraction bar to translate division)}

Translate the verbal expression into a mathematical expression.

|   | A  | B                                      |
|---|--|--|
| 1 | 9 times a number d<br>$9d$                 | 2 less than a number j<br>$j - 2$      |
| 2 | 39 divided by a number u<br>$\frac{39}{u}$ | twice the sum of x and 3<br>$2(x + 3)$ |
| 3 | 8 subtracted from the quotient of y and 5  | $\frac{y}{5} - 8$                      |

Translate the verbal expression into a mathematical expression. Then, simplify.

|   | A   | B  |
|---|---|--|
| 4 | The sum of $(8a + 2b - 4)$ and $(3b - 5)$ .<br>$\begin{aligned} & [(8a + 2b - 4) + (3b - 5)] \\ & \begin{array}{l} 8a + 2b - 4 + 3b - 5 \\ 8a + 5b - 9 \end{array} \end{aligned}$ <i>keep the signs</i> | The sum of $-7g$ and $(4g + 2)$ .                              |
| 5 | $(5m + 2)$ is subtracted from $9m$ .<br>$\begin{aligned} & 9m - (5m + 2) \\ & 9m - 5m - 2 \\ & 4m - 2 \end{aligned}$ <i>change to opposites</i>   | $(-2x + 9)$ is taken away from $(-7x + 2)$ .                   |
| 6 | The difference when $6h$ is subtracted from $(2h - 4)$ .  | The difference when $(-3n - 7)$ is subtracted from $(n + 4)$ . |

|   |  |                                    |
|---|--|------------------------------------|
| 7 | $13v + 2$ is subtracted from $11 + 5v$ . | $-18m - 4$ is added to $4m - 14$ . |
|---|--|------------------------------------|

### Translating When a Variable Is Not Assigned

- Define a variable {state what the variable represents using let statement(s)}
- Identify the key words
- Translate into the order that the keywords require using the assigned variable
- Expressions will contain one or more operations {+, -, ·, or ÷ (use a fraction bar to translate division)}

Translate each situation into a mathematical expression.

8. The number of stamps in Ethan's collection is 4 <sup>+</sup> more than <sup>÷ 2</sup> half the number of the stamps in Helen's collection. Write an expression to show the number of stamps in Ethan's collection.

Let  $x$  = # of stamps in Helen's collection

$$\frac{x}{2} + 4$$

9. Lucy babysat for 2 hours on Friday, 3 hours on Saturday, and 2.5 hours on Sunday. She earned d dollars per hour for babysitting. Write an expression to represent the total earnings for the three babysitting jobs.

Let  $2d$  = amt. for Friday

Let  $3d$  = amt. for Sat.

Let  $2.5d$  = amt. for Sun.

$$2d + 3d + 2.5d$$

$$7.5d$$

10. Kerrigan is  $k$  years old. Mia is twice as old as Kerrigan. William is 3 years younger than Mia. Write an algebraic expression to represent William's age.

Let \_\_\_\_\_ = \_\_\_\_\_

Let \_\_\_\_\_ = \_\_\_\_\_

11. A stick is  $x$  meters long. A string is 4 times as long as the stick.

a) Express the length of the string in terms of  $x$ .

b) If the total length of the string and the stick is 15 meters long, how long is the string?

~~12. Marty and Stuart are stuffing envelopes with index cards. They are putting  $x$  index cards into each envelope. When they are finished, Marty has 15 envelopes and 4 extra index cards, and Stuart has 12 envelopes and 6 extra index cards. Write an expression, in standard form, that represents the number of index cards the boys started with. Explain what your expression means.~~

~~Let \_\_\_\_\_ = \_\_\_\_\_~~

~~Let \_\_\_\_\_ = \_\_\_\_\_~~

13. A new miniature golf and arcade opened up in town. For convenient ordering, a play package is available to purchase. It includes two rounds of golf and 20 arcade tokens, plus three dollars off. There is a group of six friends each purchasing this package. Let  $g$  represent the cost of a round of golf and let  $t$  represent the cost of a token. Write two different expressions that represent the total amount this group spent. Explain how each expression describes the situation in a different way.

14 . Xander goes to the movies with his family. Each member buys a ticket and two boxes of popcorn. If there are 5 members of his family, let  $t$  represent the cost of a ticket and  $p$  represent the cost of a box of popcorn. Write two different expressions that represent the total amount his family spent. Explain how each expression describes the situation in a different way.