

1-2-19

Aim: SWBAT translate phrases into mathematical expressions.

HW: Finish Packet Pages 2 - 5

Quiz Wednesday

Do Now: Write your name on your packet.

## KEYWORDS AND PHRASES

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

Equals (=)
is is equal to is the same as is equivalent to

Is Less Than <	Is Greater Than >	Is Less Than Or Equal To ≤	Is Greater Than Or Equal To ≥
is less than is fewer than	is greater than is more than	is less than or equal to is no more than is at most	is greater than or equal to is at least 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  $\{+, -, \cdot, \text{ or } \div\}$  (use a fraction bar to translate division)}

no equal sign

Translate the verbal expression into a mathematical expression.

	A	B
1	9 times a number d $9d$	2 <u>less than</u> a number j $j - 2$
2	39 divided by a number u $\frac{39}{u}$	<u>twice</u> the <u>sum</u> of x and 3 $2(x + 3)$
3	8 <u>subtracted from</u> the <u>quotient</u> 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 $(3b - 5)$ . $[(8a + 2b - 4) + (3b - 5)]$ $8a + 2b - 4 + 3b - 5$ $8a + 5b - 9$	The sum of $-7g$ and $4g + 2$ . $[-7g + (4g + 2)]$ $-7g + 4g + 2$ $-3g + 2$
5	$5m + 2$ is <u>subtracted from</u> $9m$ . $9m - (5m + 2)$ $9m - 5m - 2$ $4m - 2$	$-2x + 9$ 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.
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### 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 more than 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 = Friday's amt.

Let 3d = Saturday's amt.

Let 2.5d = Sunday's amt.

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

$$7.5d$$

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  $x$ .

$$4x$$

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

$$\begin{aligned} 4x + x &= 15 \\ \cancel{4x} + x &= \cancel{15} \\ x &= 3 \end{aligned}$$

$$\begin{aligned} 4x & \\ 4 \cdot 3 & \\ 12 & \end{aligned}$$

The stick is 3m long and the string is 12m long.

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.