1.3: Write Algebraic Expressions

Goals: *Identify "key" words and phrases

*Translate verbal phrases into algebraic expressions

Addition		Subtraction	
Sum	Increased By	Difference	Less
Plus	More than	Minus	Less than*
Total		Decreased by	
Multiplication		Division	
Times	Of	Quotient	
Product	Each	Divide by	
Multiply by	Per	Divided into	

Underline the key words and phrases. Translate the following phrases into algebraic expressions.

Ex: $4 \frac{\text{less than}}{\text{less than}}$ a number x Ex: The $\frac{\text{sum}}{\text{sum}}$ of 8 and a number y

x-4 8 + y

Ex: The product of 9 and t Ex: The quotient of 17 and x

9t 17 ÷ x

Ex: You buy b boxes of pencils at \$1.99 $\underline{\text{per}}$ box

Ex: j jeans cost \$10 $\underline{\text{each}}$

1.99b 10j

Grouping: If you underline a <u>second</u> key word or phrase, you must use parenthesis around the second key word or phrase

Translate the following verbal phrases into algebraic expressions:

Ex: $4 \frac{\text{less than}}{n}$ the quantity $6 \frac{\text{times}}{n}$ a number n

(6n) - 4 *As soon as you see the word quantity after "less than" use parenthesis *Don't forget "less than" goes in reverse order so 4 comes second

Ex: $3 \underline{\text{times}}$ the $\underline{\text{sum}}$ of a number y and 7

$$3(y + 7)$$
 *As soon as you see "Sum" after "times" use parenthesis

Ex: The <u>difference</u> of 22 and the <u>square</u> of a number m

$$22 - (m^2)$$

Ex: The product of 8 and the quantity 9 minus x

$$8(9-x)$$

Ex: A piece of ribbon r feet long is cut from a ribbon 8 feet long. Write an expression for the length, in feet, of the remaining piece. (Draw a picture to help)

Ribbon Length	Length Cut	Remaining Length	How?
8	1	7	8 – 7
8	3	5	8 – 5
8	6	2	8 – 6



Ex: You work with 5 other people at an ice cream stand. All the workers put their tips in a jar and share their tips equally at the end of the day. Write an expression to represent the total amount of money each worker will receive in tips at the end of the day.

- a) Identify a variable t: amount of tips total
- b) Fill in the table

T	Tips for each
	person
6	1
12	2
18	3



c) Write an expression $t \div 6$

Ex: You and 4 friends meet to have dinner at a restaurant. Everyone decides to order the nightly special. Write an expression to represent the total cost of the meal.

- a) Identify a variable s: cost of the nightly special
- b) Fill in the table

S	Total cost
5	25
10	50
15	75

c) Write an expression 5s

Ex: The length of a building is 20 feet more than its width, w. Write an expression to show the length of the building.

w + 20



Ex: A brick wall is built using bricks of all the same height. Each brick is 3 inches tall. How tall is the wall if *b* bricks are used?

3*b*

