## 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 | Of | Qivision |  |
| Times | Each | Divide by |  |
| Product | Per | Divided into |  |
| Multiply by |  |  |  |

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

Ex: 4 less than a number $x$
$x-4$

Ex: The sum of 8 and a number $y$

$$
8+y
$$

Ex: The product of 9 and $t$
$9 t$

Ex: You buy $b$ boxes of pencils at $\$ 1.99$ per box
Ex: $j$ jeans cost $\$ 10$ each
$10 j$

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

## Translate the following verbal phrases into algebraic expressions:

Ex: $4 \underline{\text { less than }}$ the quantity 6 times a number $n$
( $6 n$ n) - 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 sum of a number $y$ and 7

$$
3(y+7) \quad \text { *As soon as you see "Sum" after "times" use parenthesis }
$$

Ex: The difference of 22 and the square of a number $m$

$$
22-\left(m^{2}\right)
$$

Ex: The product of 8 and the quantity $9 \underline{\text { minus }} x$

$$
8(9-x)
$$

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 <br> Length | Length <br> Cut | Remaining <br> 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 <br> 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 $\quad s$ : cost of the nightly special
b) Fill in the table

| $s$ | Total cost |
| :--- | :--- |
| 5 | 25 |
| 10 | 50 |
| 15 | 75 |

c) Write an expression 5 s

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?
$3 b$


