

## Unit 5 Intro To Polynomials

### 5.2A Substitution & Translating English to Algebra

**Substitution** – replace variables with given values and then evaluate

Ex. Evaluate each expression for the given variable values:

BEOMAS!

a)  $3x + y$  if  $x = -2$  and  $y = 4$

$$= 3(-2) + (4) \quad \text{*BRACKET the substitutions}$$

$$= -6 + 4$$

$$= \boxed{-2}$$

b)  $-2ab - (a + b)$  if  $a = 3$  and  $b = -1$

$$= -2(3)(-1) - ((3) + (-1))$$

$$= 6 - 2$$

$$= \boxed{4}$$

c)  $\frac{p-q}{2pq}$  if  $p = 3$  and  $q = -5$

$$= \frac{(3) + (15)}{2(3)(-5)}$$

$$= \frac{18}{-30}$$

$$= \boxed{-\frac{3}{5}}$$

Translating English to Algebra – see keyword list on back

Ex. Write an algebraic expression for each statement (let  $x$  be the number):

a) Five <sup>5</sup> more than <sup>+</sup> double a number.  $\times 2$

$$\boxed{\begin{array}{c} x \\ 5 + 2x \\ \text{OR} \\ 2x + 5 \end{array}}$$

b) Three less than five times a number.

$$\boxed{\cancel{5x - 3} \\ 5x - 3}$$

c) Three decreased by five times a number.

$$\boxed{3 - 5x}$$

Ex. Tickets for a play cost \$8 for adults and \$3 for children. Write an expression representing the total money collected from ticket sales.

Let  $a$  = adult cost  
 $c$  = child cost

$$\boxed{8a + 3c}$$

$\begin{array}{c} x \\ \times \end{array}$

## Translating English to Math - Key Words

|                                                           |                                                                                                                                     |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Addition</b>                                           | <u>increased</u> by<br><u>more than</u><br><u>combined</u> , together<br><u>total of</u><br><u>sum</u><br>added to<br>and           |
| <b>Subtraction</b><br><br><b><u>**order matters**</u></b> | <u>decreased</u> by<br>minus,<br><u>less</u><br><u>difference</u> between/of<br>less than<br><u>fewer</u> than<br><u>reduced</u> by |
| <b>Multiplication</b>                                     | <u>of</u> (ex. $\frac{2}{3}$ of a number)<br>times<br>multiplied by<br>product of<br>twice, doubled (x2), tripled (x3), etc.        |
| <b>Division</b>                                           | <u>per</u><br>a<br>out of<br><u>ratio of</u><br><u>quotient of</u><br>percent (divide by 100)                                       |
| <b><u>Equals</u></b>                                      | is<br>are<br>was<br>were<br>will be<br>gives<br>yields<br>sold for                                                                  |