INTRODUCTION TO ALGEBRAIC EXPRESSIONS

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To evaluate an expression we replace the variable(s) with its value(s). It is recommended to use parenthesis wherever it is needed (in many cases). Then proceed to perform the calculations according to the order of operations.

Example: *Evaluate.*

a) Evaluate $5c$, for $c = 8$

$= 5(8)$ *Replace c by 8*

$= 5 \cdot 8$

$= 40$

b) Evaluate $5x^2 - 2x$, for $x = 3$

$= 5(3)^2 - 2(3)$ *Replace x by 3*

$= 5(9) - 2(3)$

$= 45 - 6$

$= 39$

c) Evaluate $\frac{2xy+x^2}{4+y}$, for $x = 3, y = -2$

$= \frac{2(3)(-2)+(3)^2}{4+(-2)}$ *Replace x by 3 and y by -2*

$= \frac{-12+9}{4-2}$

$= \frac{-3}{2}$

EXERCISE:

Evaluate the following.

(1) $\frac{3y-x^2}{2+x}$, for $x = -1, y = 2$

(2) $3x \div 6x^2$, for $x = 2$

(3) $-m^2 - 5m$, for $m = -7$

(4) $(75 \div x^2) - 7(x - 7)$, for $x = -5$

TRANSLATING WORD PHRASES

ADDITION	**SUBTRACTION**
Added to Sum of More than Increased by Plus	Subtracted from Difference of Decreased by Minus Less than
MULTIPLICATION	**DIVISION**
Multiplied by Times Twice Product of Of	Divided by Divided into Quotient of Ratio of Per

Example: Translate each problem to an equation. Do not solve.

a) 90 minus what number is 45?

$90 - x = 45$

b) When 15 is multiplied by a number, the result is 135.

$15x = 135$

Example: Translate each phrase to an expression.

a) Twice the sum of two numbers

$2(x + y)$

b) Half the product of two numbers

$\frac{1}{2} \cdot x \cdot y$

EXERCISE: Translate each problem to an equation. Do not solve.

(5) Three less than twice a number is seven.

(6) Five more than a number is six.

EXERCISE: Translate each phrase to an expression.

(7) The quotient of a number and eight.

(8) The difference of twice a number and one

Answers:

1.) 5
2.) $1/4$
3.) -14
4.) 87
5.) $2x - 3 = 7$
6.) $x + 5 = 6$
7.) $\frac{x}{8}$
8.) $2x - 1$