

MR. KAUFMAN'S UNBELIEVABLE AND FANTASTIC ALGEBRA CLASS:

$$2 + x$$

1.1 - VARIABLES:

A VARIABLE is a letter used to represent a #. It can be any letter you want. The answer to a variable is called a SOLUTION.

A variable can have more than one solution like  $x < 3$  or  $x + 5$ .

Sometimes it has only one solution like  $x + 2 = 6$ .

The variable can be placed anywhere like in

$$2 + 3 = x$$

EVALUATING VARIABLE EXPRESSIONS:

These problems give you an algebraic expression and then give you the value of the variable. All you do is substitute the solution into the equation. It is now a # equation and you solve.

Evaluate  $3x - 6$  when  $x = 7$        $3(7) - 6 = 15$

Expression no = sign

$$2 + 3$$

$$x - 4$$

Equation  $\Rightarrow$  has an =

$$2 + 3 = 5$$

$$x - 4 = 7$$

**ALGEBRAIC EXPRESSIONS:**

**NUMBER EXPRESSION:** An expression containing only #s.  $3 + 4$

$$2 * 5 \quad 6$$

An expression contains #s, **AT LEAST** one variables and/or a combination of them, but no equals sign.  $6 + 4$   $2x + 3$

$$-2(x-3)$$

An equation has the equal sign.  $2 + 3 = 5$

$$-6 - x = -12 \quad 3(x-2) = 12$$

An **ALGEBRAIC EXPRESSION** is an expression containing a variable.

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**Example:** Write an algebraic expression for each phrase:

5 more than a #

$$n + 5$$

The product of 3 times a #

$$3x$$

The difference of 6 and a #

$$6 - w$$

The quotient of a # and 3

d

(note the numerator is the 1<sup>st</sup> written part

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and the denominator is the 2<sup>nd</sup> part of the phrase)

3

7 less than 4 times a #

$$4r - 7$$

2 more than the quantity 6 times 2

$$2 + (6 * 2)$$

\*\*\* The word "quantity" in a phrase means you will use parentheses.

**TERM** - Each piece of an algebraic expression.

$3x + 2$  has 2 terms.

Write the word phrase for each algebraic expression:

$$X + 8$$

2

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x

Operations:

addition

subtraction

multiplication

division

$$5 \div 4$$

$$\begin{array}{r} 5 \times 4 \quad 5 * 4 \\ 5 \cdot 4 \quad 5(4) \\ \hline 5 \\ 4 \end{array}$$

x

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4

5x - 1

The Product of 5 and a # less than one

3 + x

1 less than 5 times a #

$$15 + w = y$$

$$\frac{b}{8}$$

$$3.3x$$

$$\frac{1}{3}m = \frac{m}{3}$$

sum | answer to addition

difference answer to subtraction

Product answer to multiplication

quotient answer to division

$$x + 4 = 7$$

The sum of 4 more than  
x is 7

The quotient of 6 and a  
number

$$\frac{6}{x}$$

$8 - a$

~~8 less than a~~

a less than 8