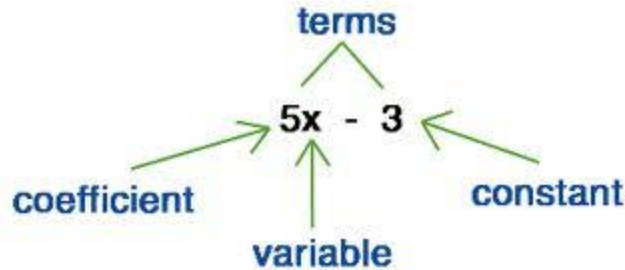# Algebraic Expressions

terms   coefficient   variable   constant

expression   equation   numeric vs. algebraic

FACTS that help identifying terms in an expression or equation: $3a + 18$

- Find terms by circling the number and/or variable with the sign in front of it.

- A variable alone has a coefficient of 1.

- If a number is next to a variable, the number and the unknown variable are being multiplied.

Together:	Pause and Try:
❶ $5x + 13$ terms: coefficients: constants: variables:	❶ $12 + 10c$ terms: coefficients: constants: variables:
❷ $2z + 2 + y + 3$ terms: coefficients: constants: variables:	❷ $15 + 3w + 2$ terms: coefficients: constants: variables:

EValuating Expressions

X+16   when x = 5

STEPS to evaluate an algebraic expression:

1. _____ in the given value for the _____ or unknown.

2. Use the order of _____ to find the value of the numeric expression.

Together:	Pause and Try:
$k + 10 \qquad k = 25$	$24 - c \qquad c = 9$
$4n \qquad n = 12$	$3j \qquad j = 6$
$\dfrac{m}{2} \qquad m = 8$	$\dfrac{d}{3} \qquad d = 30$

Writing Expressions

Common Words Used for Different Operations			
Addition	Subtraction	Multiplication	Division
sum add plus total more than added to	difference subtract minus less fewer than less than	product multiply times OF	quotient divided separated PER

HINT:

Flip Flop Words:
LESS THAN, FEWER THAN, MORE THAN, ADDED TO
*Flip flop or switch the order of the terms on either side of the operation.
Example: six less than a number

STEPS:

1. Circle the _____ and/or the unknown quantity in the problem.

2. Underline any _____ words .

3. _____ the terms and operations below the problem. (Pick a letter to represent the variable.)

4. Check for any flip flop words or phrases and _____ the order.

Together:

8 fewer than 21	14 more than a number

Pause & Try:

the product of 2 and 4	18 minus a number

Properties of Operations

==equivalent expressions==

ZERO PROPERTY

Anything times _____ equals zero.

IDENTITY PROPERTY

Addition	Multiplication

Anything plus _____ stays the same.   Anything times _____ stays the same.

COMMUTATIVE PROPERTY

Addition	Multiplication

We can _____ or change the order of the #s and the answer stays the same.

ASSOCIATIVE PROPERTY

Addition	Multiplication

We can change the grouping or _____ of the #s & the answer stays the same.

Together:	Pause & Try:
❶. $5 * p = p * 5$ _____	❶. $x + 7.5 = 7.5 + x$ _____
❷. $2 + (12 + r) = (2 + 12) + r$ _____	❷. $7 \cdot 0 = 0$ _____
❸. $0 + 5 = 5$ _____	❸. $(4 * x)10 = 4(x * 10)$ _____
❹. $y + 3 = 3 + y$_____	❹. $12(1) = 12$_____

Distributive Property

STEPS:

1. Draw a _____.

2. Set up the problem. _____ the terms and _____ the rectangle into separate boxes.

3. _____ or distribute each term into the boxes.

4. _____ the terms in each of the boxes.

5. Write the _____ with an operation sign _____ each term.

EX. $6(x+5)$

Together:		Pause and Try:	
❶. $a(b+c)$	❷. $3(6-4)$	❶. $x(y+z)$	❷. $4(5-2)$
❸. $12(r+s)$	❹. $2(r-6)$	❸. $4(x+3)$	❹. $5(8-y)$

COMBINE LIKE TERMS

EX 1:   3x + 8y + 5x + 3y

STEPS:

1. Identify each term by _____ the number, the sign, and/or variable attached to it.

   **If a # doesn't have a sign, it is a _____.

2. Sort them into _____ _____. Use their _____.

3. Combine the groups or _____ by adding/subtracting the integers.

4. Include an _____ between each term. If the term is a positive number, they are being _____together. If the term is a negative number, they are being _____.

Try Together:

❶ y + y + y   ❷ 5a + 4 + a - 1   ❸ 6x + 3y – 2x

Pause and Try:

❶ 8y + 3y   ❷ 6d - 5 + 5d   ❸ 6k + 5 + 2 -2k