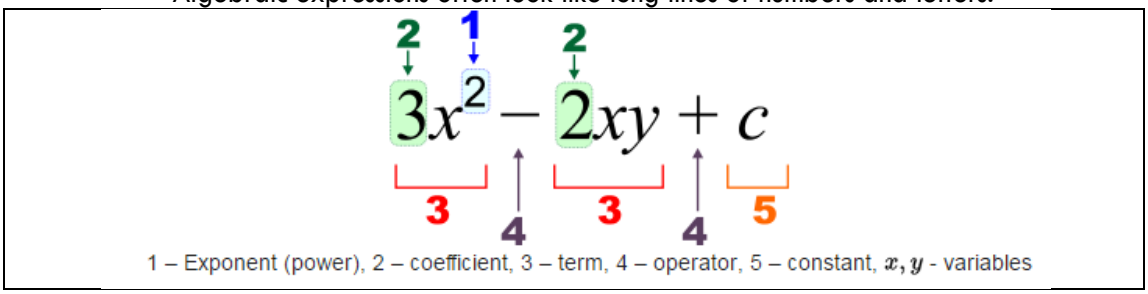
Algebra

Algebraic expressions often look like long lines of numbers and letters:



√ This expression has 3 distinct parts. Each of these parts is called a _____ and they are separated by + or – signs.

√ As you can see, there are two distinct parts to every term, the 'number part' and the 'letter part'.

√ The _____ refers to the number (with its sign). It is always written to the left of the letters. Note that the term 'c' has no number. When a variable is written with no coefficient, the coefficient is always '1'. A '+c' has a coefficient of '+1'.

√ The _____ refers to the letter(s) and their respective powers. It is written to the right of the coefficient, usually in alphabetical order.

√ An expression with one term is called a → _____, two terms→ _____, three terms →_____, more than three terms _____.

TERM	4x	$-3c^2d^4$	$-6ba^3$	9	-y	a
COEFFICIENT						
VARIABLE						

Of the above terms, 4 are 'variable' terms and 1 is a 'constant' term. The term, _____, is called a constant term because _____.

Like and Unlike Terms

2x, -121x, 5x, x, and -2x are all 'like terms' since their variables are all _____.

$9xy^2$, $5y^2x$, $-10xy^2$, xy^2, $-y^2x$ are ALSO like terms because their variables are all _____ (when put in alphabetical order).

$2x^2$ and 4x are 'UNLIKE TERMS because the variables _____ and _____ are not the same.

Terms can only be added or subtracted if they are 'LIKE TERMS'. Unlike terms can not be added or subtracted.

Practice: Matching Game A

- Using a line, connect the like terms (one from list A and one from list B).
- Remember, like terms have the exact same variables with the exact same exponents. Only the coefficients can be different.

List A	**List B**
$3x$	**$5n^2$**
$6ab$	**9**
$-8n^2$	**$-4m^3n$**
m^3n	**$9mnp$**
$-11p$	**$-2yx$**
4	**$5x^3$**
$16mnp$	**P**
$-4x^3$	**$7a^2b$**
$-8a^2b$	**$7ab$**
$3xy$	**$-4x$**

Practice: Grouping Activity B

- Circle all the monomials. Underline all the binomials. Draw a rectangle around the trinomials.

$3a+4b-c$	$5xy^2$	$1-6y$
n^2-3t	$r^2-r-12n^7$	xy
$t+8+ju+t^2$	$1/2y$	$0.9mn^2$
$4m-k$	$5t-y+6r$	$4m+2n+4k-3+r$
$-a^2$	$3x+3$	$2xy^2-3x+5$

Collecting (Adding Like Terms)

To simplify an expression by collection like terms, you:

1. Determine which terms are like
2. Rearrange (optional) *remember the sign (+/-) stays with the term
3. Add the coefficients *remember the sign (+/-) stays with the term
4. Keep the variable the same

Example A

$1x + 3x - 5 + 7x - 4x + 2$

$= 1x + 3x + 7x - 4x - 5 + 2$

$= 7x - 3$

Example B

$1x^2 + 3x + 7x - 2x^2 + 2 + 4$

Practice: Simplify the following expressions by collecting like terms

a. $3y + y^2 - 6y^2 + 7 - 4y + 3y - 2y - 1$

b. $b - 3b + 7 - 4b - 3$

c. $5h + 5h^2 - 5$

d. $3 + 7 - 2 + 3d - 8d + 7 - 2d^2$

e. $5x - 3x - 7x + 2x$

f. $3x^2 + 5x - 7 - 4x^2 - 5x + 9$

g. $5a^2 - 4a + a^2 - 8a - a$

h. $2a + b + 6c - 3a + 4b - c$

ANSWERS: a) $-5y^2+6$, b) $-6b+4$, c) $5h^2+5h-5$, d) $-2d^2-5d+15$, e) $-3x$, f) $-x^2+2$, g) $6a^2-13a$, h) $-a+5b+5c$