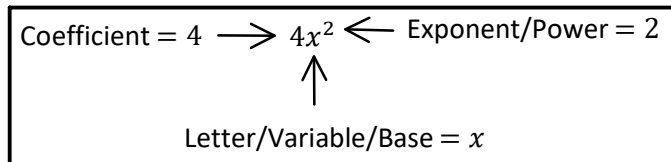


# M9 - 5.1 - Algebraic Expressions Notes

**Coefficient:** a number in front of (multiplying) a variable



**Exponent:**  $3^2 = 3 \times 3$   
 $5^3 = 5 \times 5 \times 5$

**Variable:** a letter

**Like term: Same Letter(s), Same Exponent(s).**

Term:	Like Terms:
2	1, 5, -12, 4, 5, -6, ...
a	4a, 2a, -5a, 4a, ...
xy	2xy, -3xy, 4xy, ...
a <sup>2</sup>	a <sup>2</sup> , -2a <sup>2</sup> , 3a <sup>2</sup> , 4a <sup>2</sup> , ...
x <sup>2</sup> y	2x <sup>2</sup> y, -3x <sup>2</sup> y, ...

$a + 1 = a + 1$	You can only add and subtract like terms.
$x + x^2 = x + x^2$	You cannot add or subtract unlike terms.

**Degree of term:** The Variable Exponent or Sum of Variable Exponents.

Term:	Degree:
$x^2$	(2)
$x = x^1$	(1)
$x^2(y^3)$	(5)
$8 = 8x^0$	(0)

Numbers have a degree of "0"

**Degree of polynomial:** Degree of Leading term.

**Leading Term:** The Term with the Highest Degree.

**Leading Coefficient:** Coefficient of Highest Degree Term

Polynomial:	Leading Term:	Degree of Polynomial:
$x^2 - 4$	(x <sup>2</sup> )	(2)
$2x^2 - 5x^3$	(-5x <sup>3</sup> )	(3)
$\sqrt{3}x + 2$	(\sqrt{3}x <sup>1</sup> )	(1)
$2^{-3}x^2y + 2x + 2$	(2 <sup>-3</sup> x <sup>2</sup> y <sup>1</sup> )	(3)

$\sqrt{3} = 1.73$

$2^{-3} = \frac{1}{8}$

**Polynomial:** Terms with Variables with Whole Number Exponents. (ie. 0,1,2,3...)

**Examples:**

- Monomial:** One term.  $2, x, x^2, 2xy, 5z, 10$
- Binomial:** Two terms.  $x + 2, x^2 - 4, xy + 5, 3x^2 + y^2, 2x^2 + x$
- Trinomial:** Three terms.  $x^2 + 5x + 6, a + b + c$
- Polynomial:** Any #  $2, x + 2, x^2 + 5x + 6, a + b + c + d + e$

**Polynomial:**  
 Monomials, Binomials, Trinomials and more than three terms.

**Not Polynomial**

$x^{-2}, x^\pi, 2^x, \frac{1}{x}, \sqrt{x}, \log x, \sin x$