Binomial Expansion

$$(a+b)^2 \qquad (a+b)^3$$

$$(a+b)^4 \qquad (a+b)^{16}$$

When binomials of increasing powers are expanded, the coefficients follow Pascal's Triangle pattern!

Row 0 (exponent = 0)
$$(a+b)^0 = \hat{1}$$
 Row 1
$$(a+b)^1 = 1a^1 + 1b^1$$
 Row 2
$$(a+b)^2 = 1a^2 + 2ab + 1b^2$$
 Row 3
$$(a+b)^3 = 1a^3 + 3a^2b + 3ab^2 + 1b^3$$
 Row 4
$$(a+b)^4 = 1a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + 1b^4$$
 Row 5
$$(a+b)^5 = 1a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + 1b^5$$
 Row 6 Row 7

* spot some patterns in the triangle above...!

The Binomial Theorem

Make a Rule

If n: power of the binomial and r: term number - 1,

create a genera _____ y term in the expansion of a binomial, $(a + b)^n$.

