

# Binomial Expansion Notes

AZ

## Pascal's triangle

						<u>rows</u>
		1				0
		1	1			1
	1	2	1			2
	1	3	3	1		3
1	4	6	4	1		4
1	5	10	10	5	1	5

• a way to go from binomial  $\rightarrow$  standard form

$$(a+b)^3 = 1a^3 + 3a^2b + 3ab^2 + 1b^3$$

$$(a+b)^4 = 1a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + 1b^4$$

## example

$$(x-2y)^3 = x^3 + 3x^2(-2y) + 3x(-2y)^2 + (-2y)^3$$

coefficients: 1, 3, 3, 1  $= x^3 - 6x^2y + 12xy^2 - 8y^3$

$a = x$   
 $b = (-2y)$

## examples

1.  $(x+3)^4$

2.  $(2x+3)^4$