The standard Pascal's triangle looks like this:

1 (A+B)⁰ = 1 1 1 (A+B)¹ A+B = $A^{2}+2AB + B^{2}$ (A+B)² 1 2 1 = (A+B)³ = A³+3A²B +3AB²+B³ 1 3 3 1 1 4 6 4 1 $= A^{4} + 4A^{3}B + 6A^{2}B^{2} + 4AB^{3} + B^{4}$ (A+B)⁴ $= A^{5}+5A^{4}B + 10A^{3}B^{2}+10A^{2}B^{3} + 5AB^{4}+B^{5}$ 1 5 10 10 5 1 (A+B)⁵ (etc) Notice how each pair of numbers (Above to the left) + (Above to the right)

add to the entries in the triangle.

Example: 4+6 = 10, in row #4 and row #5.

Exercise: Using these facts, QUICKLY write the expanded versions of each power polynomial below. For #5 and #6, do the problem two ways: (1) calculate using Pascal's triangle;(2) Find the inside value first, then raise it to the given power. VERIFY that the two answers are equal!

	Problem	Answer
1	(x+1) ⁴	
2	(y-z) ⁵	
3	(2x+3) ³	
4	(3x+y) ³	
5a	(10+2) ⁴	[using Pascal's Triangle]
5b	(10+2)4	[find 12 ⁴]
6a	(10-2) ³	[using Pascal's Triangle]
6b	(10-2) ³	[find 8 ³]
7	(2x+w) ⁶	

And it represents the coefficients of $(A+B)^n$ as follows: