**11.9 Binomial Distributions**  
Objective: To find binomial probabilities and to use binomial distributions

**Pascal’s Triangle**: when you arrange the values of nCr in a triangular pattern in which each row corresponds to a value of n

0C0

1C0

1C1

2C0

2C1

2C2

1

1

1

1

2

1

3C3

3C2

3C1

3C0

3

3

1

1

* Each number other than 1 is the sum of the two numbers directly above it

**NOTE**: you can use the nth row in Pascal’s triangle or work out the combination for each individual term below to find the coefficients.

**The Binomial Theorem**;

The binomial expression of (a + b)n for any positive integer n is*:*



*Example:*

*Expand (x + 2)4*

To expand a power of a binomial difference, you can write the binomial as a sum. **(a – b)n = (a + (-b))n**

* *The resulting expansion will have terms whose signs alternate between – and +*

*Example:*

*Expand (2x –3)5*

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