## The Binomial Theorem

The Binomial Theorem answers the following question: what is the expanded form of for any positive natural number ?

We can plug in various values of and expand the binomial to try to find a trend.

If we look at the coefficients of each term in the expansion, we get the th row of Pascal's Triangle.

The th value in the th row of Pascal's Triangle is denoted , pronounced " choose ". This is covered in more detail in *Mathematics of Data Management*.

If we look at the degrees of , it starts at and decreases by 1 each time. If we look at the degrees of , it starts at 0 and increases by 1 each time.

If we put this all together, we get the Binomial Theorem: , .