Part 7: The Binomial Distribution

We use the binomial distribution in situations where the same thing happens a fixed number of times, and the outcome has the same probability each time. On the formula sheet you are given a number of formulas for the binomial distribution. These are:

$$\mathrm{P}(X = x) = \binom{n}{x} \pi^x (1-\pi)^{n-x} \qquad \mu = n\pi \qquad \sigma = \sqrt{n\pi(1-\pi)}$$

Now… what do these letters mean?

n = the number of 'trials' or the number of times the event occurs.
π = the probability of the particular outcome occurring.
x = the actual number that we care about.

We are going to look at several things, but there are two assumptions that this makes… it assumes that each event is independent from each other, and it only works if there are two outcomes, normally the event meets one criteria or it doesn't.