

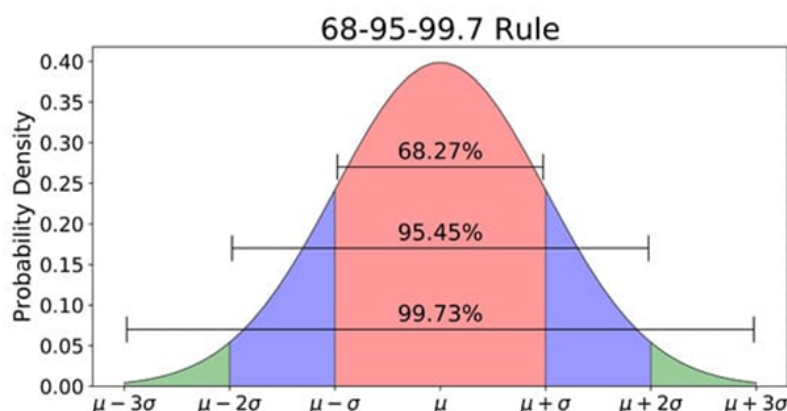
Y11 STATISTICS: PROBABILITY DISTRIBUTIONS

Key words:

- **Success** – The probability of the event you are looking at happening.
- **Failure** – The probability of everything other than the event that you're looking at happening.
- **Normal Distribution** - also called a bell curve, is a way that things are spread out.
- **Binomial Distribution** - A binomial distribution helps figure out the chance of getting a certain number of "successes" when you repeat the same experiment multiple times.
- **Standard Deviation** – a measure of how spread out a set of values is relative to its mean
- **Quality assurance** - the processes and procedures used to ensure that statistical data and analyses are accurate, reliable, and fit for their intended purpose

Normal distribution curve:

A normal distribution, also called a bell curve, is a way that things are spread out. Imagine a group of people and their heights. Most people are around the average height, and fewer people are much taller or much shorter. When you draw a picture of this, it makes a bell shape. The top of the bell is the average, and the sides slope down as you get further away from the average.



Quality Assurance:

In quality assurance, "action" and "warning" lines on a control chart indicate when a process is deviating from its expected performance and requires intervention.

Warning lines, typically set at ± 2 standard deviations - another sample should be taken right away to make sure there is not a problem

Action lines, usually at ± 3 standard deviations – STOP production.



Pascal's Triangle:

is a triangular array of numbers where each number is the sum of the two directly above it.

Let's say you flip a coin three times. The third row of Pascal's triangle is 1, 3, 3, 1.

•1: way to get three heads (HHH)

•3: ways to get two heads and one tail (HHT, HTH, THH)

•3: ways to get one head and two tails (HTT, THT, TTH)

•1: way to get three tails (TTT)

Pascal's Triangle

Binomial Coefficients

