Student's t Distribution

In probability and statistics, Student's t-distribution is similar to the normal distribution.
It is a continuous distribution that when sketched, is a bell-shaped curve but the tails are heavier.
There is a higher probability of extreme values in the t distribution than the normal distribution.
We use the t distribution as a substitute for the normal distribution is the standard deviation of the population is unknown and the central limit theorem cannot be use (the sample is less than 30)

Degrees of Freedom

Degrees of freedom are the parameter we need to use to find a critical value from the t distribution
Degrees of freedom, known as v, are the number of values minus 1
$v = n - 1$

Statistical Tables

Table 5: Percentage Points of the Student's t-distribution
Table 5 in the Statistical Formulae and Table booklet, allows us to find critical values of the t distribution as long as we know α and v

Uses for A Level Statistics:

- Confidence intervals with unknown variance and small n (<30)
- One sample Hypothesis Testing of the mean with unknown variance and small n (<30)
- Two sample Hypothesis Testing of the mean with unknown variance and small n (<30)
- Paired sample Hypothesis Testing of the mean with unknown variance and small n (<30) – This is sometimes known as the Paired t Test