$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Social Science Statistics

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

T-Test Calculator for 2 Independent Means

Social Science Statistics

This simple *t*-test calculator, provides full details of the t-test calculation, including sample mean, sum of squares and standard deviation.

T-Test Calculator

Further Information

A *t*-test is used when you're looking at a numerical variable - for example, height - and then comparing the averages of two separate populations or groups (e.g., males and females).

Requirements

- Two independent samples
- Data should be normally distributed
- The two samples should have the same variance

Null Hypothesis

H0: u1 - u2 = 0, where u1 is the mean of first population and u2 the mean of the second.

As above, the null hypothesis tends to be that there is no difference between the means of the two populations; or, more formally, that the difference is zero (so, for example, that there is no difference between the average heights of two populations of males and females).

Equation

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Take me to the calculator!