

1 Student's t test

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sigma \sqrt{\frac{2}{n}}}$$

2 Welch's t test

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}}$$