Hypothesis Tests

All test statistics are of the form $\dfrac{\text{Point Estimate - Parameter}}{\text{Standard Error}}$

Parameter	Point Estimate	Test Statistic	Assumptions
μ	$\bar{x}$	$z = \dfrac{\bar{x} - \mu}{\sigma_{\bar{x}}}$	σ known $\bar{x}$'s normal
μ	$\bar{x}$	$t = \dfrac{\bar{x} - \mu}{s/\sqrt{n}}$ $df = n - 1$	σ unknown $\bar{x}$'s normal
p	$\hat{p} = \dfrac{r}{n}$	$z = \dfrac{\hat{p} - p}{\sqrt{\dfrac{pq}{n}}}$	$np > 5$ $nq > 5$
$\mu_1 - \mu_2$	$\bar{x}_1 - \bar{x}_2$	$z = \dfrac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\dfrac{\sigma_1^2}{n_1} + \dfrac{\sigma_2^2}{n_2}}}$	σ_1, σ_2 known $\bar{x}_1 - \bar{x}_2$'s normal IRS
$\mu_1 - \mu_2$	$\bar{x}_1 - \bar{x}_2$	$t = \dfrac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\dfrac{s_1^2}{n_1} + \dfrac{s_2^2}{n_2}}}$ $df = \text{MIN}(n_1 - 1, n_2 - 1)$	σ_1, σ_2 unknown and assumed unequal $\bar{x}_1 - \bar{x}_2$'s normal IRS
$\mu_1 - \mu_2$	$\bar{x}_1 - \bar{x}_2$	$t = \dfrac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$ $s = \sqrt{\dfrac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$ $df = n_1 + n_2 - 2$	σ_1, σ_2 unknown and assumed equal $\bar{x}_1 - \bar{x}_2$'s normal IRS
μ_d	$\bar{d}$	$t = \dfrac{\bar{d} - \mu_d}{s_d/\sqrt{n}}$ $df = n - 1$	d's normal DRS
$p_1 - p_2$	$\hat{p}_1 - \hat{p}_2$	$z = \dfrac{(\hat{p}_1 - \hat{p}_2) - (p_1 - p_2)}{\sqrt{\dfrac{\bar{p}\bar{q}}{n_1} + \dfrac{\bar{p}\bar{q}}{n_2}}}$ $\bar{p} = \dfrac{r_1 + r_2}{n_1 + n_2}$	$n_1\bar{p} > 5$ $n_1\bar{q} > 5$ $n_2\bar{p} > 5$ $n_2\bar{q} > 5$