

$H_0: \mu = \mu_0; H_1: \mu \neq \mu_0 (< >)$			$H_0: \mu_1 = \mu_2; H_1: \mu_1 \neq \mu_2 (< >)$			
Sample	$\sigma$	Statistics	Sample	$\sigma$	Unconnected samples	Connected samples $n = n_1 = n_2$
	$\sigma$ <b>Known</b>	$Z = \frac{\bar{X} - \mu_0}{\sigma} \sqrt{n} \sim N(0,1)$		$\sigma_1 \sigma_2$ <b>Known</b>	$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \sim N(0,1)$	
$n > 30$	$\sigma$ <b>Unknown</b>	$Z = \frac{\bar{X} - \mu_0}{S} \sqrt{n} \sim N(0,1)$	$n_1 > 30$ $n_2 > 30$	$\sigma_1 \sigma_2$ <b>Unknown</b> $\sigma_1^2 = \sigma_2^2$	$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{n_1 S_1^2 + n_2 S_2^2}} \sqrt{n_1 n_2} \sim N(0,1)$	$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n} + \frac{S_2^2}{n} - \frac{2rS_1 S_2}{n}}} \sim N(0,1)$
				$\sigma_1 \sigma_2$ <b>Unknown</b> $\sigma_1^2 \neq \sigma_2^2$	$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \sim N(0,1)$	
$n \leq 30$	$\sigma$ <b>Unknown</b>	$t = \frac{\bar{X} - \mu_0}{S} \sqrt{n-1} \sim t\text{-Studenta } \nu = n-1$	$n_1 \leq 30$ or $n_2 \leq 30$	$\sigma_1 \sigma_2$ <b>Unknown</b> $\sigma_1^2 = \sigma_2^2$	$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{n_1 S_1^2 + n_2 S_2^2}{n_1 + n_2 - 2} \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \sim t\text{-Studenta } \nu = n_1 + n_2 - 2$	$t = \frac{\bar{d}}{S_d} \sqrt{n-1}, d_i = x_{1i} - x_{2i}$ $t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n-1} + \frac{S_2^2}{n-1} - \frac{2rS_1 S_2}{n-1}}} \sim t\text{-Studenta } \nu = n-1$
				$\sigma_1 \sigma_2$ <b>Unknown</b> $\sigma_1^2 \neq \sigma_2^2$	$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1 - 1} + \frac{S_2^2}{n_2 - 1}}} \sim t\text{-Studenta}$ $\nu = \frac{\left( \frac{S_1^2}{n_1 - 1} + \frac{S_2^2}{n_2 - 1} \right)^2}{\frac{\left( \frac{S_1^2}{n_1 - 1} \right)^2}{n_1 + 1} + \frac{\left( \frac{S_2^2}{n_2 - 1} \right)^2}{n_2 + 1}} - 2$	