

	Means Large samples	Means Small samples	Proportion Large samples
Alternatives	$\mu_1 < \neq > \mu_2$	$\mu_1 < \neq > \mu_2$	$p_1 < \neq > p_2$
Conditions	We have independent, random observations from two populations, and there are enough observations in each sample that we can use the Central Limit Theorem.	We have independent, random observations from two normally distributed populations and the populations variances are unknown.	We have independent, random observations from two binomial experiments, and there are enough trials in each experiment that we can use the Central Limit Theorem.
Distribution	Z	t	Z
df	—	$\frac{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)^2}{\frac{\left(\frac{s_1^2}{n_1}\right)^2}{n_1-1} + \frac{\left(\frac{s_2^2}{n_2}\right)^2}{n_2-1}}$	—
TS	$\frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$	$\frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$	$\frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}}$