Test	Used When Comparing	Generic Null/Alternative	Test Statistic
1-Sample t	single population mean to a hypothesized value	$H_0 : \mu = \mu_0$ $H_a : \mu \neq \mu_0$	$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$
2-Sample t (Welches)	difference in population means to a hypothesized value	$H_0 : \mu_1 - \mu_2 = d_0$ $H_a : \mu_1 - \mu_2 \neq d_0$	$t = \frac{\bar{x}1 - \bar{x}2 - d_0}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$
1-Sample z	single population proportion to a hypothesized value	$H_0 : p = p_0$ $H_a : p \neq p_0$	$\frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$
2-Sample z	difference in population proportions to a hypothesized value	$H_0 : p_1 - p_2 = d_0$ $H_a : p_1 - p_2 \neq d_0$	$\frac{\hat{p_1} - \hat{p_2} - d_0}{\sqrt{\frac{\hat{p_1}(1-\hat{p_1})}{n_1} + \frac{\hat{p_2}(1-\hat{p_2})}{n_2}}}$
Chi-Squared	single population variance to a hypothesized value	$H_0 : \sigma^2 = \sigma_0^2$ $H_a : \sigma^2 \neq \sigma_0^2$	$\chi^2 = (n-1)\frac{s^2}{\sigma_0^2}$ d.o.f: (n - 1)
Chi-Squared	goodness-of-fit to a hypothesized discrete distribution	$H_0 : p_1 - p_2 = d_0$ $H_a : p_1 - p_2 \neq d_0$	$\chi^2 = \sum_{Cells} \frac{(Observed - Expected)^2}{Expected}$ d.o.f: k-1

Chi-Squared	independence of two categorical variables	H_0: Population dist. follows the specified discrete distribution. H_a: Population dist. does not follow the specified distribution.	$\chi^2 = \sum_{Cells} \frac{(Observed - Expected)^2}{Expected}$ d.o.f: (r -1)*(c-1) r: num rows, c: num columns in table
F-test	ratio of population variances	$H_0 : \frac{\sigma_1^2}{\sigma_2^2} = r_0$ $H_a : \frac{\sigma_1^2}{\sigma_2^2} \neq r_0$	$F = \frac{s_1^2}{s_2^2}$ d.o.f.: (n_1 -1, n_2 -1)
F-test	ANOVA table	————	————
Kolmogorov-Smirnov	goodness-of-fit to a hypothesized continuous distribution	————	————

Notes:

σ^2: Denotes a population variance variance
s^2: Denotes a sample variance
s: Denotes a sample standard deviation
μ: Denotes a population mean
$\bar{x}$: Denotes a sample mean
n: Number of observations in a sample
p: Denotes a population proportion
$\hat{p}$: Denotes a sample proportion
Anything with a subscript 0 (except the null hypothesis): Denotes some hypothesize value.