1 sample Z	$z = \dfrac{\bar{x} - \mu_0}{(\sigma / \sqrt{n})}$	x_i normal or $n > "30"$
2 sample Z	$z = \dfrac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\dfrac{\sigma_1^{\,2}}{n_1} + \dfrac{\sigma_2^{\,2}}{n_2}}} \overset{H_0}{=} \dfrac{\Delta \bar{x}}{\sigma_{\Delta \bar{X}}}$	Normal, independent, σ_i known but unequal. Note: $\mathrm{H}_0 : \Delta\mu = 0$
1 sample t-test	$t = \dfrac{\bar{x} - \mu_0}{(s / \sqrt{n})} \quad df = n - 1$	Normal population or n>36, σ_i unknown
Paired t-test	$t = \dfrac{\bar{d} - d_0}{(s_d / \sqrt{n})} \quad df = n - 1$	Normal population of *PAIRED* differences σ_i unknown (or large n); d_0 = population mean difference
1-proportion z-test	$z = \dfrac{\hat{p} - p_0}{\sqrt{\dfrac{p_0 q_0}{n}}}$	$np, nq > "7"$ for normal approx, SRS (Simple Random Sample) $q_0 = 1 - p_0$
2-proportion z-test, equal variances	$z = \dfrac{(\hat{p}_1 - \hat{p}_2) - (p_1 - p_2)}{\sqrt{\hat{p}(1 - \hat{p})(\dfrac{1}{n_1} + \dfrac{1}{n_2})}}$ $\hat{p} = \dfrac{x_1 + x_2}{n_1 + n_2}$	$np, nq > 7$, independent obs. $\mathrm{H}_0 : \Delta p = 0$
2-sample t-test, Unequal Variances	$t = \dfrac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}}}$ $df = \dfrac{\left(\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}\right)^2}{\left(\dfrac{S_1^2}{n_1}\right)^2 / (n_1 - 1) + \left(\dfrac{S_2^2}{n_2}\right)^2 / (n_2 - 1)}$	Normal population or $n_1 + n_2 > 43$, independent obs., $\mathrm{H}_0 : \Delta\mu = 0$ Note in this case $df \le n_1 + n_2 - 2$ "Desert Island" rule-of-thumb: $\min(n_1 - 1, n_2 - 1)$
2-sample pooled t-test	$t = \dfrac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s_p \sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$ $s_p^{\,2} = \dfrac{(n_1 - 1)s_1^{\,2} + (n_2 - 1)s_2^{\,2}}{n_1 + n_2 - 2}$ $df = n_1 + n_2 - 2$	Normal population or $n_1 + n_2 > 43$, independent obs., $\sigma_1 = \sigma_2$ $\mathrm{H}_0 : \Delta\mu = 0$
Test for variance/standard deviation, X Normal	$\dfrac{(n-1)s^2}{\sigma^2} \sim \chi^2_{n-1}$, so $\Pr(a \le \dfrac{(n-1)s^2}{\sigma^2} \le b) =$ $\Pr\left(\dfrac{(n-1)s^2}{b} \le \sigma^2 \le \dfrac{(n-1)s^2}{a}\right)$	Normal population or N large and f(x) largely symmetric; $H_0 : \sigma^2 = \sigma_0^2$; a < b chosen such that $P(a \le \chi^2_{n-1} \le b) = 1 - \alpha$

Test for unity ratio of variances/standard deviations, X_i Normal	Under H_o, $\frac{S_1^2/\sigma_1^2}{S_2^2/\sigma_2^2} = \frac{S_1^2}{S_2^2} = \left(\frac{S_1}{S_2}\right)^2 \sim F_{n_1-1,n_2-1}$	Normal population or N large and f(x) largely symmetric; $H_0: \sigma_1^2 = \sigma_2^2$ Use properties of F distribution and put largest variance in numerator; p-value is twice the p-value of the 1-sided $\frac{\alpha}{2}$ test.
Test for Zero correlation	Under H_0, $\sqrt{\frac{(n-2)r^2}{1-r^2}} \approx t_{n-2}$	Normal population. $H_0: \rho = 0$ $H_1: \rho \neq 0$
Test for general correlation	Fisher's Z-Transform (to normality) $z' = \tanh^{-1}(r) = \frac{1}{2}\ln\left(\frac{1+r}{1-r}\right) \overset{d}{\approx} \mathrm{N}\left(\operatorname{atanh}(\rho), \frac{1}{n-3}\right)$ $\xi_l = z' - z_{\frac{\alpha}{2}}\sigma_{Z'}$; $\xi_u = z' + z_{\frac{\alpha}{2}}\sigma_{Z'}$ $\rho_l = \tanh(\xi_l) = \frac{e^{2\xi_l}-1}{e^{2\xi_l}+1}$; $\rho_u = \tanh(\xi_u) = \frac{e^{2\xi_u}-1}{e^{2\xi_u}+1}$	Bivariate normal population Bias is $\frac{2\rho}{n-1}$ $\sigma_{Z'}^2 = \frac{1}{n-3}$, ind of r
Wilks Test (Aymptotic Likelihood Ratio test)	$T_n = 2\left(l(\hat{\theta}\mid x) - l(\hat{\theta}_0\mid x)\right) \overset{d}{\rightarrow} \chi_\nu^2$ Rejection region $R = \left\{x : T_n > \chi_{\nu,\alpha}^2\right\}$	l is log-likelihood function; $\hat{\theta}, \hat{\theta}_0$ are the unrestricted/restricted mle, respectively. ν is number of free parameters specified in null. Likely most accurate for moderate n.
Wald Test	$W_n = \frac{\hat{\theta}_n - \theta_0}{\sqrt{I_n(\theta_0)}} \overset{d}{\rightarrow} N(0,1)$ $(1-\alpha)CI: \hat{\theta}_n \pm z_{\frac{\alpha}{2}} \cdot I_n^{-\frac{1}{2}}(\hat{\theta}_n)$ $n(\hat{\theta}_n - \theta_0)^T I_1(\hat{\theta}_n)(\hat{\theta}_n - \theta_0) \overset{d}{\rightarrow} \chi_k^2$	$\theta \in \Theta \subset R^k$. Result holds under H_0. $I_n(\theta)/J_n(\theta)$ is expected/observed Fisher information.
Rao (Score) Test	$U_n \approx N_k\left(0, nI_1(\theta_0)\right)$, or rather $\frac{U_n}{\sqrt{n}} \overset{d}{\rightarrow} N_k\left(0, I_1(\theta_0)\right)$ $R_n = \frac{1}{n}U(\theta_0)^T I_1^{-1}(\theta_0)U(\theta_0) \overset{d}{\rightarrow} \chi_k^2$	$\theta \in \Theta \subset R^k$; $U(\theta) = \frac{\partial}{\partial\theta}\ln f(\theta\mid x)$

References.

Various

Anirban DasGupta, *Asymptotic Theory of Statistics and Probability*, Springer-Verlag New York, 2008. ISBN 978-0-387-75970-8