Hypothesis tests for one sample

Test	Null hypothesis	Test statistic	Distribution
Binomial test	The population value of a probability is some particular value, θ.	Observed number of occurrences, x, from a Binomial distribution.	B(n, θ)
Normal approximation to binomial test	$p = \theta$ where p is the population proportion and θ is a particular value.	$z = \dfrac{x/n - \theta}{\sqrt{\left(\dfrac{\theta(1-\theta)}{n}\right)}}$	N(0, 1)for large sample
Kendall's rank correlation test	There is no association between the variables.	Kendall's rank correlation coefficient $\tau = \dfrac{S}{\frac{1}{2}n(n-1)}$ (see a text book for calculation of S).	As in statistical tables
Kolmogorov-Smirnov test	The data are drawn from a population with a given distribution.	D = largest difference between expected and observed cumulative probabilities	As in statistical tables
Normal test with known variance	The population mean has a particular value, μ.	$z = \dfrac{\bar{x} - \mu}{\sigma/\sqrt{n}}$	N(0, 1)
Normal test with estimated variance	The population mean has a particular value, μ.	$z = \dfrac{\bar{x} - \mu}{s/\sqrt{n}}$	N(0, 1) for large sample
Pearson's product moment correlation test	$\rho = 0$ where ρ is the population value of the correlation coefficient.	Pearson's product moment correlation coefficient (pmcc) $r = \dfrac{S_{xy}}{\sqrt{S_{xx}S_{yy}}}$ where $S_{xy} = \sum(x_i - \bar{x})(y_i - \bar{y})$ $= \sum x_i y_i - \dfrac{(\sum x_i)(\sum y_i)}{n}$ $= \sum x_i y_i - n(\bar{x})(\bar{y})$	As in statistical tables
Poisson test	The population mean is some particular value, λ.	Observed number of occurrences, x, from a Poisson distribution.	Poisson (λ)

Sign test	Population median = M	r = number of values > M	$B(n, \frac{1}{2})$ where n = number of values $\neq M$
Spearman's rank correlation test	There is no association between the variables.	Spearman's rank correlation coefficient $r_s = 1 - \frac{6\sum d_i^2}{n(n^2-1)}$	As in statistical tables
t test	The population mean has a particular value, μ.	$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$	t_{n-1}
χ^2 test for goodness of fit	The data are drawn from a population with a given distribution.	$X^2 = \sum \frac{(f_o - f_e)^2}{f_e}$	χ^2_{k-p-1} Observations grouped into k cells all with expected frequency ≥ 5; p parameters estimated from data; distribution is approximate.
χ^2 test for variance	The population variance has a given value σ^2.	$X^2 = \frac{(n-1)s^2}{\sigma^2}$	χ^2_{n-1}
χ^2 test on a contingency table	The row and column classifications are independent.	$X^2 = \sum \frac{(f_o - f_e)^2}{f_e}$ For a χ^2 test on a 2x2 contingency table, some statisticians use Yates' correction.	$\chi^2_{(r-1)(c-1)}$ r is the number of rows, c is the number of columns; distribution is approximate.
Wilcoxon single sample test	Population median = M	Test statistic: $T = \min[P, Q]$ P, Q are the sums of the ranks corresponding to positive and negative deviations $(x_i - M)$	As in statistical tables