

# The Table!

	Categorical Data proportions, percents, counts	Numeric Data means, correlation, slope
<p><b>Basic Tests</b></p> <p>1 or 2 groups, categories, choices, factors, or levels</p> <p>2 SD Rule applies</p> <p>Can be left, right, or both tails</p>	<p>one proportion (3.1) <math>p=0.40</math></p> <p>40% of people favor banning cell phones on public transportation.</p> <p>Less than 20% of people approve of the job Congress is doing.</p> <p>two proportions (3.2) <math>p_1=p_2</math></p> <p>Men are more likely than women to chew tobacco.</p> <p>Blacks are less likely than Whites to trust police.</p> <p>Gender is not a factor in whether or not a person owns a gun.</p>	<p>one mean (4.1) <math>\mu=61.5</math></p> <p>The mean weight of Skittles bag is 61.5g.</p> <p>paired means (4.2) <math>\mu_d=0</math></p> <p>A person's weight before a diet was the same as the weight after the diet.</p> <p>two independent means (4.3) <math>\mu_1=\mu_2</math></p> <p>Women have higher estrogen levels than men.</p> <p>correlation (5.x) <math>\rho=0</math></p> <p>The size of a person's foot is related to the length of their forearm.</p>
Distribution	Normal (Z)	Student's T
Test Statistic	$z = \frac{\text{observed} - \text{expected}}{\text{standard deviation}}$	$t = \frac{\text{observed} - \text{expected}}{\text{standard error}}$
Minitab	Stat > Basic Statistics	Stat > Basic Statistics
<p><b>Advanced Tests</b></p> <p>more than 2 groups, categories, choices, factors, or levels</p> <p>Always right tail</p>	<p>goodness of fit (3.3)</p> <p>25% of people are Republican, 35% are Democrats, and 40% are independents.</p> <p>The colors of Skittles are equally distributed.</p> <p>The 68-95-99.7 rule applies to a set of data.</p> <p>test for association (3.4)</p> <p>Race and political party are associated.</p> <p>A person's religion and gender are related.</p> <p>A person's race is a factor in whether or not they were stopped by the police.</p>	<p>one-way ANOVA (4.4) <math>\mu_1=\mu_2=\mu_3</math></p> <p>Race is not a factor in a person's SAT score.</p> <p>two-way ANOVA</p> <p>Race and gender are related to a person's income.</p> <p>simple regression (5.x) <math>\beta_1=0</math></p> <p>A person's age is related to their income.</p> <p>multiple regression (6.x) <math>\beta_1=\beta_2=\beta_3=0</math></p> <p>The percent of students meeting education requirements is related to the money spent on education, attendance in class, and poverty levels.</p>
Distribution	Chi-Square	F
Test Statistic	$\chi^2 = \sum \left( \frac{\text{observed} - \text{expected}}{\sqrt{\text{expected}}} \right)^2$	$F = \frac{\text{Variance}_1}{\text{Variance}_2} = \frac{MS_{\text{source}}}{MS_{\text{error}}}$
Minitab	Stat > Tables	Stat > ANOVA or Stat > Regression

The *symbolic representation* is for a typical null hypothesis and may not match *the example claims*.

Example claims may be the null or the alternative hypothesis.

Last updated: August 19, 2017