

Using Minitab to run a Hypothesis Test of a Single Proportion

1. Click on "Stat", choose "Basic Statistics" and then "1 Proportion ...".
2. From the drop down box, choose "Summarized data".
3. Enter the number of successes next to "Number of events".
4. Enter the number of trials next to "Number of trials".
5. Click on the box next to "Perform hypothesis test".
6. Enter the proportion from your hypotheses in the box next to "Hypothesized proportion".
7. Click on the "Options" button.
8. Enter the percent confidence desired next to "Confidence level".
9. Choose the correct alternative hypothesis from the drop down box next to "Alternative hypothesis".
10. Choose "Normal approximation" from the drop down box next to "Method".
11. Click on "OK" in that window and click on "OK" in the next window.

The result will appear in the "Session" window under the heading "Test and CI for One Proportion". The test statistic will be under "Z-Value" and the P-value will be under "P-value".

Example (Navidi & Monk, *Elementary Statistics*, 2nd edition, #13 p.455(d)): The claim is that the population proportion is 80%, which is 0.80 as a decimal. The sample size is 500, and the number of successes is 382. The significance level is 0.01. $1 - 0.01 = 0.99$, so the confidence level is 99%.

Open Minitab. Click on "Stat", choose "Basic Statistics" and "1 Proportion ...".

From the drop down box in the upper right corner of the window, choose "Summarized data". Enter 382 next to "Number of events:". Enter 500 next to "Number of trials:". Click in the box next to "Perform hypothesis test". Enter 0.80 next to "Hypothesized proportion:".

Click on the "Options ..." button. Enter 99 next to "Confidence level:". Select "Proportion \neq hypothesized proportion" from the drop down box next to "Alternative hypothesis:". Select "Normal approximation" from the drop down box next to "Method:".

Click on "OK" in that window and click on "OK" in the window below. The results will appear in the "Session" window under the heading "Test and CI for One Proportion". In this case, the test statistic is listed under "Z-value" as -2.01, and the P-value is listed under "P-value" as 0.044.

Since the P-value of 0.044 is more than the significance of 0.01, the null hypothesis is not rejected. With 99% confidence, the evidence is not strong enough to say the population proportion is not equal to 80%.