

Testing Hypotheses Involving the Proportion Using Excel

Example #13(d) p.455 The sample size is 500. The number of successes is 382. The hypothesized proportion is 80%. The significance is 0.01. The alternative hypothesis is that the population proportion does not equal 0.80.

Open an Excel spreadsheet. Enter the number of successes, the sample size, the hypothesized proportion, and the significance in cells B1 through B4.

Enter the formulas shown in cells C6 through C10 in the neighboring cells, B6 through B10. When you have finished typing in the formulas, you will only see the values shown below in cells B6 through B10 that Excel calculates.

	A	B	C	D
1	Successes =	382		
2	Sample Size =	500		
3	Hypothesized Prop. =	0.80		
4	Significance =	0.01		
5				
6	Sample Proportion =	0.764	=B1/B2	
7	Confidence =	99	=(1-B4)*100	
8	Standard Error =	0.179	=SQRT(B3*(1-B3)/B2)	
9	Test Statistic =	-2.0125	=(B6-B3)/B8	
10	P-value =	0.0442	=2*NORMSDIST(B9)	
11				

The most important values here are the test statistic, -2.0125, and the P-value, 0.0442. Since the P-value, 0.0442, is more than the significance, 0.01, the null hypothesis is not rejected. The conclusion would be that, with 95% confidence, the evidence is not strong enough to say the population proportion does not equal 0.80.