

Testing Hypotheses Involving the Mean Using Excel

Example #15 p.444 The sample size is 55. The sample mean is 192,340. The sample standard deviation is 42,387. The hypothesized mean is 178,258. The significance is 0.05. The alternative hypothesis is that the population mean is more than 178,258.

Open an Excel spreadsheet. Enter the sample mean, the sample standard deviation, the sample size, the hypothesized mean, and the significance in cells B1 through B5.

Enter the formulas shown in cells C7 through C10 in the neighboring cells, B7 through B10. When you have finished typing in the formulas, you will only see the values shown below in cells B7 through B10 that Excel calculates. The last "1" in the formula in C10 indicates that this is a one-tailed test.

	A	B	C	D
1	Sample Mean =	192340		
2	Sample Std. Dev. =	42387		
3	Sample Size =	55		
4	Hypothesized Mean =	178258		
5	Significance =	0.05		
6				
7	Confidence =	95	$=(1-B5)*100$	
8	Standard Error =	5715.46	$=B2/SQRT(B3)$	
9	Test Statistic =	2.98873	$=(B1-B4)/B8$	
10	P-value =	0.0021	$=T.DIST.RT(B9, B3-1)$	
11				

The most important values here are the test statistic, 2.98873, and the P-value, 0.0021. Since the P-value, 0.0021, is less than the significance, 0.05, the null hypothesis is rejected. The conclusion would be that, with 95% confidence, the evidence is strong enough to say the population mean is more than 178,258.