

Finding the Sample Size Needed to Estimate a Mean Using Excel

Example #51(b) p.364 The problem is dealing with the mean component life. The confidence is 99%. The margin of error is 3. The population standard deviation is assumed to be 20.

Open an Excel spreadsheet. Enter the confidence, the margin of error and the population standard deviation in cells B1 through B3.

Enter the formulas shown in cells C5 through C7 in the neighboring cells, B5 through B7. When you have finished typing in the formulas, you will only see the values shown below in cells B5 through B7 that Excel calculates.

	A	B	C	D
1	Confidence =	99		
2	Margin of Error =	3		
3	Population Std. Dev.=	20		
4				
5	Significance =	0.01	=(100-B1)/100	
6	Critical Value =	2.576	= -NORMSINV(B5/2)	
7	Minimum Sample Size =	295	=CEILING((B6*B3/B2)^2,1)	
8				

Thus, you would need to sample at least 295 components to estimate the population mean in this case within plus or minus 3 hours, at 99% confidence.