

MM305M3 Competency Assessment Example

When the results of a survey or poll are published, the sample size and the margin of error are both given. For example: 1000 voters were surveyed and $39 \pm 2\%$ of the voters agree with the president. In this example $N=1000$ and the margin of error (MoE) is 2%.

This website lists several public opinion polls. Search the site and find a poll where the sample size and margin of error are given. Try to find a poll dealing with a topic in your profession or one in which you are really interested. <http://www.pollingreport.com>

Determine the following information for the selected poll results and include in your initial post. See the CA starter video in [LiveBinder](#).

1. URL for the website. State the poll question, the sample size n , and the margin of error (also known as sampling error).
2. Interpret the results of your poll using your own words and full sentences. Note: Depending on the question asked, your poll may have more than one poll result – you only need to discuss one result.
3. State the confidence interval using the MoE. What does this confidence interval estimate?
4. Use the Excel template (found in the [LiveBinder](#)) to calculate the confidence interval based on the sample size and the number of successes (the proportion you are interested in). Use a confidence level of 95%.
5. What is the calculated confidence interval? How does this compare to the interval in part 3 using the poll's margin of error?
6. Discuss potential biases that could skew sampling results.

Opinions about Hydraulic Fracturing (“fracking”) were surveyed nationally during March 2016. These survey results can be found at: <http://www.pollingreport.com/energy.htm>

The question posed was “Do you favor or oppose hydraulic fracturing or 'fracking' as a means of increasing the production of natural gas and oil in the U.S.?”

Sample size, $n=1,019$ adults nationwide. Margin of error ± 4 .

36% were in favor of fracking as a method for increasing our energy resources in the US
51% were opposed of fracking as a method for increasing our energy resources in the US
13% were unsure of their opinion on fracking for increasing our energy resources in the US

1a. The confidence interval for each result is found by adding/subtracting the MoE from the result.

Confidence Level = 95%

In favor: $(36 - 4\%, 36 + 4\%) = (32\% - 40\%)$

1b and 1c) Using the Excel template, I will enter the following variables:

Confidence Interval is $(0.3304 - 0.3896)$ or $(33.04\% - 38.96\%)$

Sample size = 1019

Proportion of sample = 36%

Confidence Interval for Proportion (Number of Success U	
Sample Size	1012
Confidence Level	95.00%
Proportion of sample	36.00%
z - score for the left side of the confidence	-1.95996
z - score for the right side of the confidence	1.95996
Standard Error of the proportion	0.01509
Lower Limit = proportion - standard error * z	0.3304
Upper Limit = proportion + standard error * z	0.3896

2a.

Sample Size for Proportion	
Estimate of True Proportion	0.36
Sampling Error	0.04
Confidence Level	95.00%
Z Score	-1.95996
Calculated Sample Size	554

The sample size needed is 554. They had enough people samples.

3ai. I feel the proportion should be greater than 0.36.

3aii. The null hypothesis is the proportion for the number of people who want to increase our resources is 36%.

3aiii. The alternative hypothesis is the proportion for the number of people who want to increase our resources is greater than 36%.

3aiv. The level of significance I am choosing is 0.05.

4ai. 0.05 for a right hand test corresponds to a z - score of 1.64. Compared to the test statistic of 2.13, I should reject the null hypothesis.

4aii. To have the opposite result, I need to fail to reject the null hypothesis. This means the test statistic would need to be greater than or equal to 2.13. This means having a cumulative value of around 0.9835 which means the level of significance would need to be less than 0.0165, such as 0.01.

