

# Skyler MacDougall

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## Homework 7: Due Friday 7/3/2020

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### STAT-145-02

Use the following information to answer the next three exercises: According to a Field Poll, 79% of California adults (actual results are 400 out of 506 surveyed) feel that “education and our schools” is one of the top issues facing California. We wish to construct a 90% confidence interval for the true proportion of California adults who feel that education and the schools is one of the top issues facing California.

125. A point estimate for the true population proportion is:

1. 0.90
2. 1.27
3. 0.79
4. 400

126. A 90% confidence interval for the population proportion is \_\_\_\_.

1. (0.761, 0.820)
2. (0.125, 0.188)
3. (0.755, 0.826)
4. (0.130, 0.183)

127. The error bound is approximately \_\_\_\_.

1. 1.581
2. 0.791
3. 0.059
4. 0.030

Use the following information to answer the next two exercises: Five hundred and eleven (511) homes in a certain southern California community are randomly surveyed to determine if they meet minimal earthquake preparedness recommendations. One hundred seventy-three (173) of the homes surveyed met the minimum recommendations for earthquake preparedness, and 338 did not.

128. Find the confidence interval at the 90% Confidence Level for the true population proportion of southern California community homes meeting at least the minimum recommendations for earthquake preparedness.

1. (0.2975, 0.3796)
2. (0.6270, 0.6959)
3. (0.3041, 0.3730)
4. (0.6204, 0.7025)

129. Public Policy Polling recently conducted a survey asking adults across the U.S. about music preferences. When asked, 80 of the 571 participants admitted that they have illegally downloaded music.

1. Create a 99% confidence interval for the true proportion of American adults who have illegally downloaded music. Interpret this confidence interval.

$$\pi \in (0.1027, 0.1715)$$

(1)

I am 99% confident that between 10.27% and 17.75% of American adults have illegally downloaded music.

2. ~~This survey was conducted through automated telephone interviews on May 6 and 7, 2013. The error bound of the survey compensates for sampling error, or natural variability among samples. List some factors that could affect the survey's outcome that are not covered by the margin of error.~~
3. Without performing any calculations, describe how the confidence interval would change if the confidence level changed from 99% to 90%.  
The confidence interval would be smaller if it changed from 99% to 90%, because it contains a smaller portion of the possibilities, so it can be smaller.

130. You plan to conduct a survey on your college campus to learn about the political awareness of students. You want to estimate the true proportion of college students on your campus who voted in the 2012 presidential election with 95% confidence and a margin of error no greater than five percent. How many students must you interview?

You must interview at least 80 individuals to get the correct confidence interval, with a small enough margin of error.