

Ryerson University
F16 QMS 202
Practice Questions for Lecture 2
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1. The county clerk wants to estimate the proportion of voters who will need special election facilities. Suppose a sample of 400 voters was taken. If 150 need special election facilities, calculate a 90% confidence interval for the population proportion.

- a) $0.3352 \leq \pi \leq 0.4148$
b) $0.4352 \leq \pi \leq 0.4948$
c) $0.2352 \leq \pi \leq 0.4148$
d) $0.3352 \leq \pi \leq 0.4948$

2. In the past, the proportion of voters who needed special election facilities in a county has been estimated to be 15%. The county clerk wants to construct a 95% confidence interval for the population proportion which extends at most 0.07 to either side of the sample proportion. How large a sample must be taken to assure these conditions are met?

Answer: 100

3. If you want to be 95% confident in estimating the population mean with a sample of size n to within a sampling error ± 5 , where $50 \leq n \leq 100$, the standard deviation σ must satisfy:

- a) $15 \leq \sigma \leq 25$
b) $18.04 \leq \sigma \leq 25.51$
c) $1.1 \leq \sigma \leq 2.5$
d) $11.12 \leq \sigma \leq 20.51$

4. A study from the previous year on a sample of size 300 showed that 50% of office workers respond to e-mail within an hour ± 0.05 . What is the confidence level of this estimation?
- a) 90%
 - b) 95%
 - ☒ c) 91.6%
 - d) 99.7%
5. The head librarian at the Library of Congress has asked her assistant for an interval estimate of the mean number of books checked out each day. The assistant provides the following interval estimate: from 740 to 920 books per day. If the head librarian knows that the population standard deviation is 150 books checked out per day, and she asked her assistant for a 95% confidence interval, approximately how large was the sample her assistant used to determine the interval estimate?

Answer: 11

6. A confidence interval was used to estimate the proportion of statistics students who are female. A random sample of 72 statistics students generated the following 90% confidence interval: (0.445, 0.638). What sample size would be necessary if we wanted to estimate the true proportion to within 0.08 using 95% confidence?

Answer: 149

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