

CI FOR PROPORTION

TEXT: 8.3

LAST NAME	FIRST NAME	DATE
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1 (4 points). For a class project, a political science student at a large university wants to estimate the percent of students who are registered voters. He surveys 50 students and finds that 32 are registered voters.

- (a) Find the point estimate for the population proportion of registered voters.
- (b) Find a 90% confidence interval for the proportion of students who are registered voters.
- (c) Find the minimal sample size required for computing a 95% confidence interval with the margin of error of 0.03.
- (d) True or false: if we increase the confidence level while keeping the sample size the same, then the margin of error will also increase.

2 (2 points). In a sample of 700 American teenagers, 514 consider ghosting an acceptable way to end a romantic relationship, while the rest do not consider it acceptable. Find an 80% confidence interval for the proportion of American teens who consider ghosting acceptable.

3 (2 points). Find the minimal sample size required to construct an 85% confidence interval estimate for the population proportion, with 5% as your margin of error.

4. Use the **normal approximation formula** for the proportion CI to find an 80% confidence interval for population proportion, given $x = 514$ and $n = 700$.

5. Use `binom.test` to find the exact sample size required to create a 85% confidence interval with the margin of error of 5%. You will have to call `binom.test` over and over with various samples sizes n and corresponding $x = n/2$, until you converge on the correct value of n .