Estimating a Population Proportion

Estimating_Population_Proportion.tns

Name _____

Class _____

Problem 1 – Margin of Error and a Confidence Interval

1.3: A surveyor randomly selects 350 registered voters and asks if they support a proposed bill. There were 293 voters that said yes. Find $\hat{p}$.

1.6: Find a 95% and a 99% confidence interval for the true proportion of voters who support the proposed bill.

95%: $z_{\frac{\alpha}{2}}$ _____, E _____, Confidence Interval: _____

99%: $z_{\frac{\alpha}{2}}$ _____, E _____, Confidence Interval: _____

Problem 2 – Practice Problems

Read the problem on page 2.1

2.2: Find a 95% confidence interval for the true proportion of teenagers who go to the mall at least once per week.

2.3: What do you think of the reporter's claim?

Read the problem on page 2.4.

2.5: Find a 90% confidence interval for the true proportion of students who support the switch.

2.6: What do you think of the principal's claim?

Problem 3 – Sample Size

3.2: With a margin of error of no more than 2%, a surveyor wants to estimate with a 95% confidence level, the percent of citizens in a city that support building a new bridge.

How many citizens must be surveyed?

3.5: Suppose previous polls suggest that 22% of the citizens support building the new bridge.

How many citizens must be surveyed?

Problem 4 – Extension

Use the spreadsheet on page 4.2 to find various products of $\hat{p}\left(1-\hat{p}\right)$. Compare the formulas in Problem 3 and explain how and why the first is derived from the second.