

AP Statistics - Confidence Intervals for a Proportion - Test

Common Core AP STAT 6.1, AP STAT 6.2, AP STAT 6.3, HSS-IC.B.4 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 45-minute test covers confidence intervals for a proportion, conditions, margin of error, sample size, and interpretation. Use the four-step process and write interpretations in context.

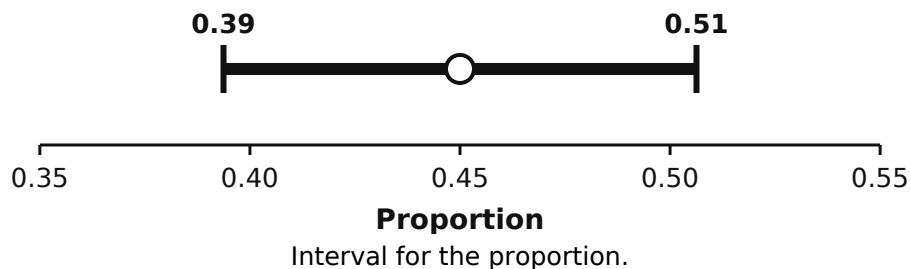
About this test

- Grade: AP Statistics
- Chapter: Confidence Intervals for a Proportion
- Standards: AP STAT 6.1, AP STAT 6.2, AP STAT 6.3, HSS-IC.B.4
- Time: 45 minutes
- Total: 20 points

Question 1 - Build an interval [4 pts]

In a random sample of 300 adults in a city, 135 say they own an electric vehicle charger or plan to buy one. (a) State and check the conditions. (2 points) (b) Construct a 95% confidence interval for the proportion of all adults in the city. (1 point) (c) Interpret the interval. (1 point)

Question 2 - Name the margin [1 pt]

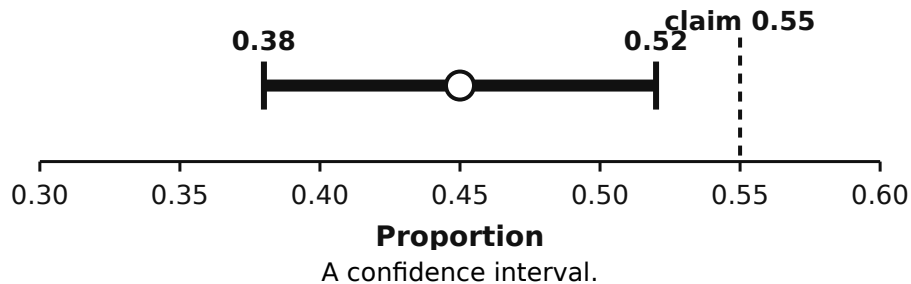


An interval is (0.39, 0.51). What is the margin of error?

Question 3 - Interpret the level [2 pts]

Explain what it means that the interval in the previous question was made with 95% confidence.

Question 4 - Claim [2 pts]



A 95% confidence interval for a proportion is (0.38, 0.52). A company claims the true proportion is 0.55. Does the interval support the claim?

Question 5 - Sample size [3 pts]

How large a random sample is needed to estimate a proportion with a 99% confidence interval and margin of error at most 0.02, assuming no prior estimate? (3 points)

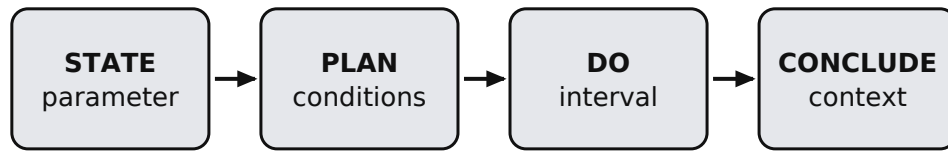
Question 6 - Conditions [2 pts]

A random sample of 50 students from a school of 800 has 4 who play the oboe. Can we use a z interval? Explain.

Question 7 - Effect of changes [3 pts]

Describe how each change affects the width of a confidence interval for a proportion: (a) increasing the confidence level from 90% to 99%; (b) increasing the sample size from 200 to 800; (c) a sample proportion changing from 0.50 to 0.10. (1 point each)

Question 8 - Process [3 pts]



Four steps.

List the four steps of the inference process and say what is done in the PLAN step for a one-proportion z interval. (3 points)