

Algebra 2 - Sampling, Surveys and Experiments - Test

Common Core S-IC.A.1, S-IC.A.2, S-IC.B.3, S-IC.B.4, S-IC.B.5, S-IC.B.6 · maths-pdf.fr/en/

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

This 45-minute test on sampling, surveys, and experiments has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: Sampling, Surveys and Experiments
- Standards: S-IC.A.1, S-IC.A.2, S-IC.B.3, S-IC.B.4, S-IC.B.5, S-IC.B.6
- Time: 45 minutes
- Total: 20 points

Question 1 - Classify studies [2 pts]

Classify each as a survey, an observational study, or an experiment. (a) Researchers randomly assign 100 patients to a drug or a placebo. (1 point) (b) A poll calls 800 random households. (1 point)

Question 2 - Bias [2 pts]

A cafeteria manager wants to know if students like the new menu. She asks the first 20 students who finish eating at the dessert bar. Explain two problems with this sample.

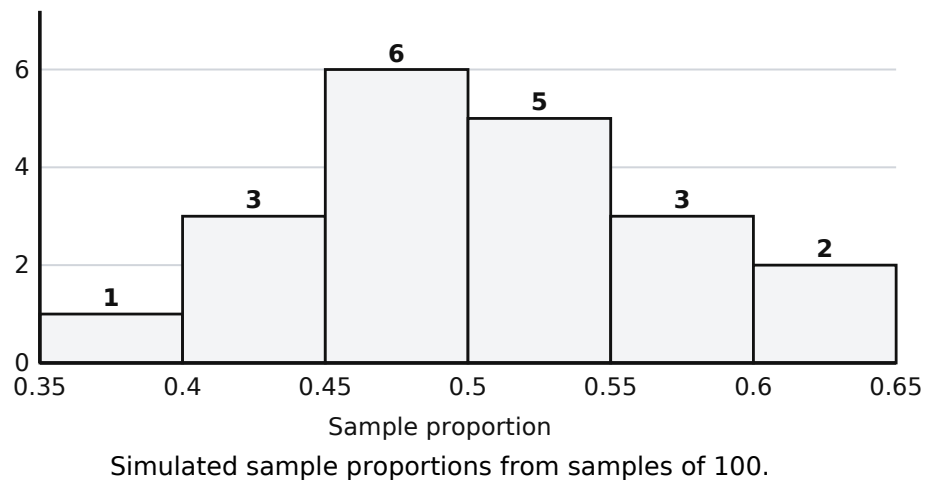
Question 3 - Margin of error [3 pts]

Sample size n	100	400	900
$1/\sqrt{n}$	?	?	?

Margins of error.

Complete the table with the margin of error $\frac{1}{\sqrt{n}}$. A poll of 400 voters finds 54% support. Give an interval for the true percent.

Question 4 - Read a simulation [3 pts]

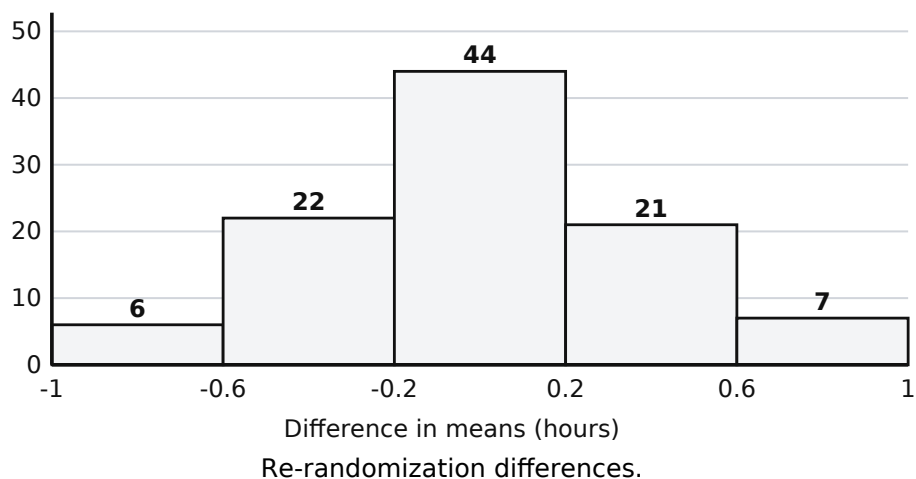


The histogram shows 20 sample proportions simulated from a population with $p = 0.5$. (a) How many samples had a proportion of 0.55 or greater? (b) What fraction is that? (c) Would a sample proportion of 0.65 be unusual?

Question 5 - Design an experiment [2 pts]

Describe how to randomly assign 30 plants to a new fertilizer or a control group.

Question 6 - Compare treatments [2 pts]



In an experiment, the difference in group means was 1.0. Use the simulated differences to decide if the treatment likely had an effect. Explain.

Question 7 - Sample size [2 pts]

A poll with 250 voters has a margin of error of about 6.3%. About how many voters are needed to reduce it to about 3.2%?

Question 8 - Evaluate a report [2 pts]

A news site says, "Online poll: 85% of readers support the new law." The poll was a link on the site that 5,000 people chose to answer. Evaluate the claim.

Question 9 - Find the error [2 pts]

Mei says an observational study showing that students who eat breakfast have higher grades proves that breakfast causes higher grades. Correct her.