

AP Statistics - Sampling Methods and Bias in Surveys - Test

Common Core AP STAT 3.1, AP STAT 3.2, AP STAT 3.3, HSS-IC.B.3 · maths-pdf.fr/en/

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

This 45-minute test covers population and sample, sampling methods, random selection, and bias. Write complete sentences in context and show each step of any selection.

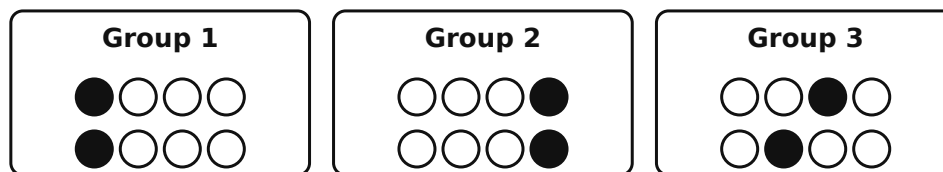
About this test

- Grade: AP Statistics
- Chapter: Sampling Methods and Bias in Surveys
- Standards: AP STAT 3.1, AP STAT 3.2, AP STAT 3.3, HSS-IC.B.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Population and statistic [2 pts]

A researcher surveys 150 of the 3,000 members of a gym and finds that 60 of them use the pool. Identify the population, the sample, and the statistic.

Question 2 - Identify the method [3 pts]



Population in three groups.

The picture shows how a sample was chosen from three groups. (a) Name the method. (1 point) (b) Explain how it differs from a cluster sample. (2 points)

Question 3 - Random digits [3 pts]

Random digits
42 17 88 63 17 05 29 71 36

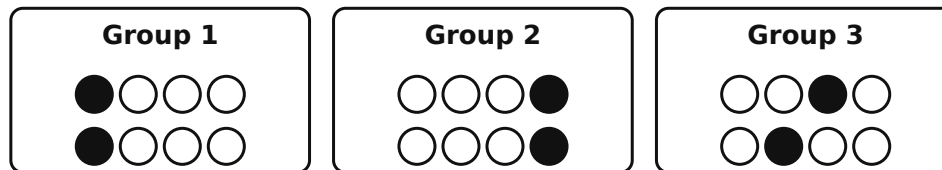
Random digits.

Use the digits above in pairs to select an SRS of 4 from members labeled 01 to 50. Show your steps. (3 points)

Question 4 - Bias in a poll [3 pts]

A news website asks readers to vote online on whether a stadium should be built. 78% of 4,300 voters say yes. (a) Name the type of bias. (1 point) (b) Explain why the result may not reflect the whole city. (1 point) (c) Suggest a better method. (1 point)

Question 5 - Stratified sizes [3 pts]



Population in three groups.

A company has 500 office staff, 300 drivers, and 200 warehouse workers. Describe a stratified sample of 100 employees with the correct number from each group. (3 points)

Question 6 - Sample size and bias [2 pts]

A student says that increasing the sample size will eliminate the bias in a convenience sample. Is the student correct? Explain.

Question 7 - Sampling variability [2 pts]

Two random samples of 200 students from the same school give 38% and 43% who own a car. Explain why the two percents differ.

Question 8 - Choose and justify [2 pts]

A city wants opinions from residents of its 12 neighborhoods that differ greatly in income. Which is better, a cluster sample or a stratified sample? Explain.