Population/sample proportions

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Find the sample proportion for 84 successes among 140. [2 marks]

84/140 = 0.6.

Answer: 0.6.

2. Find the success count for n = 250 and sample proportion 0.36. [2 marks]

250 × 0.36 = 90.

Answer: 90.

3. A report writes p = 0.42 because 84 of 200 sampled people said yes. Correct the notation. [2 marks]

Reserve p for the population parameter.

Answer: $\hat{p} = 0.42$ estimates p.

4. Of 180 selected people, 120 respond and 72 say yes. Give the respondent estimate. [2 marks]

72/120 = 0.6.

72/180 instead measures the fraction selected who both responded and said yes.

Answer: 0.6.

5. Why might 20 responses from one household not be independent observations of community preference? [2 marks]

The count alone does not establish binomial assumptions.

Answer: Shared circumstances and influence can correlate their answers.

6. Why should a success rule not be changed after inspecting results? [2 marks]

Pre-specify measurement rules and transparently explain justified changes.

Answer: A selective redefinition can favour a desired conclusion.