A sample proportion is a random variable

Key knowledge | Free preview

Learning target: Understand sample proportion as a random variable and the shape, mean and spread of its sampling distribution.

A population proportion p is fixed in a sampling model, while an observed sample proportion changes from sample to sample. If X counts successes in n independent trials, the random sample proportion is X/n. Its possible values, mean and spread follow from the binomial count. A larger sample reduces variation without removing selection bias.

Try the mathematics

Task 1. Suppose each independent trial succeeds with p=0.3 and n=100. Define X and the random sample proportion. State its possible values, mean and standard deviation.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/aspire-mm-u34-o1-kk-16/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key knowledge; bullet 16; p. 102.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o1-kk-16. This is an internal identifier, not an official VCAA code.

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