Understand distributions of sample means

Key knowledge | Free preview

Learning target: Understand distributions of sample means.

The sample mean varies across repeated samples even when the population is fixed. Independent sampling gives mean μ and standard error σ/√n. A normal population gives exact normal sample means; for other populations, a large-sample approximation needs judgement about skewness, tails and the sampling mechanism.

Try the mathematics

Task 1. A normal population has mean 80 and SD 12. For 36 independent observations, give the exact distribution of the sample mean. Use Φ(1)=0.8413 and Φ(-1)=0.1587 to estimate $P(78<\bar{X}<82)$.

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/sm-u34-o1-kk-15/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 1; Key knowledge; bullet 15; p. 114.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o1-kk-15. This is an internal identifier, not an official VCAA code.

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