Use technology to produce examples or counterexamples for propositions

Key skills | Free preview

Learning target: Use technology to produce examples or counterexamples for propositions.

Use the population {0,2,4,6}, drawing uniformly and independently with replacement. Its mean is 3 and variance is 5. A simulation stores one mean per sample; a graph of $g(x)=\sqrt{(5/x)}$ provides a separate standard-error model. Record your procedure and actual outputs, using the supplied results only as checks.

Try the mathematics

Task 1. Use a reproducible trace before random simulation: map $U \in [0,1)$ to population index floor(4U), starting at index 0. For U values 0.05,0.70,0.34,0.95,0.21,0.49,0.51,0.80, form successive pairs and their means. Test “every sample mean equals 3”.

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-u2-o3-ks-03/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 2; Outcome 3; Key skills; bullet 3; p. 71.

The learning target is a concise paraphrase. Aspire reference: sm-u2-o3-ks-03. This is an internal identifier, not an official VCAA code.

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