Choosing a defensible probability model

Key knowledge | Free preview

Learning target: Know when Bernoulli trials and particular probability distributions are appropriate models.

A distribution is a model with assumptions, not just a formula to apply after recognising a keyword. A binomial count needs a fixed number of independent trials with a common success probability. A normal approximation needs contextual support for a suitable continuous shape. State the assumptions, calculate under them, and identify features that would make the model unsuitable.

Try the mathematics

Task 1. Ten devices are sampled independently from a large production stream; each has defect probability 0.3. Model the defect count and give its mean and standard deviation. Explain why taking ten items without replacement from a box of twenty containing exactly six defects is different.

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-15/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key knowledge; bullet 15; p. 102.

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

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