Trees, conditional probability and total probability

Key knowledge | Free preview

Learning target: Understand compound-event displays, the probability addition rule, exclusivity, independence, conditional probability and total probability.

A probability tree separates a process into conditional stages. Multiply along a path for a joint probability and add disjoint paths for a total. Conditioning changes the denominator to the relevant subgroup. Independence means that knowing one event does not change the other’s probability; it is different from the events being mutually exclusive.

Try the mathematics

Task 1. Forty per cent of travellers use a bus. Of bus users, 20% are late; of other travellers, 5% are late. Draw a two-stage tree, label all four endpoint probabilities, and find P(late) and P(bus given late).

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-u2-o1-kk-12/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 2; Outcome 1; Key knowledge; bullet 12; p. 55.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u2-o1-kk-12. This is an internal identifier, not an official VCAA code.

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