Implementing integration and sampling algorithms

Key skills | Free preview

Learning target: Design and implement algorithms and simulations with suitable technology functions.

Implementation requires a complete sequence that another person or machine can follow, not merely a description of the idea. Specify initial values, updates, branches and termination, then record actual results from the run. For a simulation, reproduce the intended probabilities and compare a summary with theory while recognising that random outputs vary between runs.

Try the mathematics

Task 1. Implement the trapezium algorithm for $\int_0^2 x\, e^{(-x)} dx$ with n=4 and n=8. Record your sums and compare them with the exact result. Give a reproducible loop or spreadsheet method.

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-o3-ks-10/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 3; Key skills; bullet 10; p. 104.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o3-ks-10. This is an internal identifier, not an official VCAA code.

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