Understand abstraction, decomposition, patterns and algorithms as tools for investigation

Key knowledge | Free preview

Learning target: Understand abstraction, decomposition, patterns and algorithms as tools for investigation.

Use a calculator table, spreadsheet or short program to examine $u_0=100$, $u_{n+1}=0.8u_n+60$. Keep a record of inputs, iteration order and displayed precision. The closed form $300-200(0.8)^n$ gives an independent benchmark. Expected outputs below are mathematical checks for your run, not a claim that software has already run.

Try the mathematics

Task 1. Decompose the model into input, state, update and output. Implement a loop for four updates, storing both n and u. Give the expected table and describe one abstraction.

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-u1-o3-kk-01/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 1; Outcome 3; Key knowledge; bullet 1; p. 63.

The learning target is a concise paraphrase. Aspire reference: sm-u1-o3-kk-01. This is an internal identifier, not an official VCAA code.

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