Formulate and analyse specific/general cases, proving results that claim general validity

Key skills | Free preview

Learning target: Formulate and analyse specific/general cases, proving results that claim general validity.

An illustrative population is modelled by $P' = 0.2P(1-P/1000)$, with $P(0)=100$ and time measured in weeks. The population observations supplied here are invented for mathematical practice. Compare model behaviour, numerical approximations and contextual conclusions while keeping the model's assumptions separate from the example data.

Try the mathematics

Task 1. Verify the supplied logistic solution by differentiation and initial condition. Prove that it increases and remains below 1000 for $t \geq 0$.

Continue with the full worksheet

The complete resource has 3 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-u34-o2-ks-03/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 2; Key skills; bullet 3; p. 115.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o2-ks-03. This is an internal identifier, not an official VCAA code.

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