Understand proof as justification for a general mathematical result

Key knowledge | Free preview

Learning target: Understand proof as justification for a general mathematical result.

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 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-u34-o2-kk-04/

Study-design reference

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

The learning target is a concise paraphrase. Aspire reference: sm-u34-o2-kk-04. This is an internal identifier, not an official VCAA code.

Free preview: share intact with attribution, without charging. Full resource rights are not included.

Original independent practice. Not published or endorsed by VCAA. The activity is not an official SAC, examination or complete treatment of every clause of a broad curriculum requirement.