Variables, data and constraints

Key skills | Free preview

Learning target: Identify the important data, variables, restrictions and contextual features needed to investigate a problem.

Before calculating, identify what varies, what is fixed, what is unknown and what is being optimised or estimated. Translate constraints into mathematical conditions and preserve their meaning. Explain which assumptions make the model workable, then consider how changing one assumption would affect the result. This makes the analysis reviewable and easier to improve.

Try the mathematics

Task 1. A cooling record gives temperatures 80,50,35,27.5 °C at times 0,4,8,12 minutes. The room stays at 20 °C. Investigate a shifted exponential model; later, a new reading at 6 minutes is 42 °C. Identify independent/dependent variables, fixed or fitted parameters and the main domain restriction.

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-o2-ks-02/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 2; Outcome 2; Key skills; bullet 2; p. 56.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u2-o2-ks-02. This is an internal identifier, not an official VCAA code.

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