Constraints in optimisation and inference

Key skills | Free preview

Learning target: Apply the conditions and constraints needed for a valid technology calculation.

Conditions belong to the calculation, not only to the final sentence. A solver may return negative, complex or extraneous candidates that do not satisfy the original equation or context. Enter appropriate restrictions when possible and always substitute candidates back. State why a rejected output fails rather than deleting it without explanation.

Try the mathematics

Task 1. A solver reports $x=1$ as the stationary point of $f(x)=x\,e^{(-x)}$. Find its maximum and minimum when the allowed interval is instead $[2,4]$, and explain why the solver output alone is insufficient.

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-11/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 3; Key skills; bullet 11; p. 104.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o3-ks-11. This is an internal identifier, not an official VCAA code.

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