Numerical roots and parameter cases

Key skills | Free preview

Learning target: Solve literal, parameterised and numerical equations on a domain using suitable methods, including Newton iteration, and verify general or particular solutions.

Different equation forms call for different solution methods. A graph can locate roots and suggest a starting interval, while a numerical iteration refines a particular root. General parameter equations may require separate exceptional cases. Report whether a result is exact or approximate, and substitute back into the original equation to check it.

Try the mathematics

Task 1. For $f(x)=x^3-2x-2$, show there is a root in $[1,2]$. Use Newton's method from $x_0=2$ for three steps and report the root to four decimal places.

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-o1-ks-06/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key skills; bullet 6; p. 102.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o1-ks-06. This is an internal identifier, not an official VCAA code.

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