Solve equations analytically, graphically and numerically, obtaining exact or approximate answers as appropriate

Key skills | Free preview

Learning target: Solve equations analytically, graphically and numerically, obtaining exact or approximate answers as appropriate.

An equation can be solved in exact symbolic form, approximated numerically and interpreted as a graph intersection. These approaches should agree when they use the same domain and constraints. A sign-changing bracket gives a verifiable numerical enclosure for a continuous function, while substitution checks whether a proposed root actually satisfies the equation.

Try the mathematics

Task 1. Solve $x^2=3$ for $x>0$ exactly. Use four bisection steps for $f(x)=x^2-3$ on $[1,2]$, giving every midpoint and the final interval containing the root.

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-o1-ks-14/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 1; Key skills; bullet 14; p. 115.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o1-ks-14. This is an internal identifier, not an official VCAA code.

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