Areas between intersecting curves

Key skills | Free preview

Learning target: Use definite integrals to calculate areas under and between curves over an interval.

A geometric area between curves is the integral of upper minus lower over intervals where that ordering is known. Find intersections before integrating and split the interval if the order changes. A signed integral can cancel positive and negative contributions; a geometric area cannot. A sketch is a useful check on bounds, signs and the final units.

Try the mathematics

Task 1. Find the area enclosed by $y=4-x^2$ and $y=x^2-2$. Show the intersections, identify the upper curve and evaluate the integral exactly.

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-15/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key skills; bullet 15; p. 103.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o1-ks-15. This is an internal identifier, not an official VCAA code.

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