Understand Cartesian, parametric and polar equations as representations of relations

Key knowledge | Free preview

Learning target: Understand Cartesian, parametric and polar equations as representations of relations.

Cartesian equations relate x and y directly, parametric equations use a shared parameter, and polar equations use distance and angle. Converting between forms can expose familiar curve features, but the parameter range and conventions must be retained. A complete curve and a restricted traversal may share the same simplified equation.

Try the mathematics

Task 1. Convert $r=4\cos\theta$ to Cartesian form and identify the curve. For $x=3\cos t, y=2\sin t$ with $0\leq t<2\pi$, give the Cartesian equation and starting point/direction.

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-u2-o1-kk-17/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 2; Outcome 1; Key knowledge; bullet 17; p. 69.

The learning target is a concise paraphrase. Aspire reference: sm-u2-o1-kk-17. This is an internal identifier, not an official VCAA code.

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