Know the cross product and methods for vector equations of lines and planes

Key knowledge | Free preview

Learning target: Know the cross product and methods for vector equations of lines and planes.

A line needs a point and one nonzero direction; a plane needs a point and two independent directions, or a nonzero normal. Coordinate equations can be obtained by eliminating parameters. Intersections become simultaneous systems, whose number of solutions has a direct geometric meaning.

Try the mathematics

Task 1. A plane passes through P=(1,0,2) with directions u=(1,2,0),v=(0,1,1). Find vector, parametric and Cartesian equations. Intersect it with r=t(1,1,1).

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-kk-13/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 1; Key knowledge; bullet 13; p. 114.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o1-kk-13. This is an internal identifier, not an official VCAA code.

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