Understand the geometry of plane vectors and complex-plane numbers

Key knowledge | Free preview

Learning target: Understand the geometry of plane vectors and complex-plane numbers.

A plane vector and a complex number both encode two real components, but their algebraic operations have different meanings. Complex multiplication by a unit-modulus number rotates, while the vector dot product produces a scalar measuring alignment. Use an Argand picture and a coordinate calculation to distinguish these operations.

Try the mathematics

Task 1. Interpret $z=3+4i$ as both an Argand point and a plane vector. Find $|z|$ and iz, and describe the geometric effect of multiplication by i. Check orthogonality using a dot product.

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-05/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 1; Key knowledge; bullet 5; p. 114.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o1-kk-05. This is an internal identifier, not an official VCAA code.

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