Explain how similarity scales lengths, areas and volumes.

Key knowledge | Free preview

Learning target: Explain how similarity scales lengths, areas and volumes.

Similar shapes preserve corresponding angles and a common ratio between corresponding lengths. For solids, the same linear scale factor acts in three directions. Consequently areas scale by its square and volumes by its cube. These rules require genuine similarity; changing just one dimension does not justify applying the full-area or full-volume scaling rule.

Try the mathematics

Task 1. Triangles have side lengths 3,4,5 and 6,8,10. Establish similarity and give the larger-to-smaller length and area ratios. Would sides 6,8,11 give the same result?

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-internal-gm-u2-o1-aos4-kk-07/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Unit 2; Outcome 1; Key knowledge; Space, measurement and applications of trigonometry; bullet 7; p. 39.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u2-o1-aos4-kk-07. This is an internal identifier, not an official VCAA code.

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