Solve graph problems and prove related theorems

Key skills | Free preview

Learning target: Solve graph problems and prove related theorems.

Graph formulas should be justified by a count or a structural argument, then applied only when their assumptions hold. Euler’s planar formula requires a connected plane drawing with the exterior face counted. A trail uses edges without repetition, whereas a Hamilton requirement concerns visiting vertices.

Try the mathematics

Task 1. Prove that the number of odd-degree vertices is even. Derive the edge count of K_n and find the number of edges in a 3-regular graph with eight vertices.

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-u1-o1-ks-11/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 1; Outcome 1; Key skills; bullet 11; p. 62.

The learning target is a concise paraphrase. Aspire reference: sm-u1-o1-ks-11. This is an internal identifier, not an official VCAA code.

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