Count a planar graph’s faces, vertices and edges and apply Euler’s relation.

Key skills | Free preview

Learning target: Count a planar graph’s faces, vertices and edges and apply Euler’s relation.

A graph records relationships through vertices and edges; the drawing’s apparent distances have no meaning unless weights are supplied. Degree counts incident edge ends, so a loop counts twice. A bridge is an edge whose removal increases the number of connected components. Isomorphic drawings preserve adjacency even when positions and labels change.

Try the mathematics

Task 1. An undirected graph has vertices A,B,C,D,E and edges AB,AC,BC,CD,DE. Draw it, list the degrees, identify bridges and construct its adjacency matrix in order A,B,C,D,E.

Continue with the full worksheet

The complete resource has 3 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-aos2-ks-01/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Unit 2; Outcome 1; Key skills; Graphs and networks; bullet 1; p. 39.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u2-o1-aos2-ks-01. This is an internal identifier, not an official VCAA code.

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