General Mathematics | Units 3–4 | Outcome 1

Model and solve flow problems using inspection or maximum-flow/minimum-cut reasoning.

Key skills | Free preview

Learning target: Model and solve flow problems using inspection or maximum-flow/minimum-cut reasoning.

A feasible flow respects every directed capacity and conserves flow at intermediate vertices. Any source-to-sink flow is bounded by the capacity of any cut separating source from sink, counting forward cut edges. Finding a feasible flow equal to a cut capacity proves optimality. Looking only at total source or sink capacity may miss an internal bottleneck.

Try the mathematics

Task 1. Capacities are s→a 7, s→b 5, a→b 2, a→t 4, b→t 8. Construct a feasible flow of 11 and verify capacities and conservation.

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-u34-o1-aos2-networks-ks-04/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Units 3–4; Outcome 1; Key skills; Networks and decision mathematics; bullet 4; p. 92.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u34-o1-aos2-networks-ks-04. This is an internal identifier, not an official VCAA code.

Free preview: share intact with attribution, without charging. Full resource rights are not included.

Original independent practice. Not published or endorsed by VCAA. The activity is not an official SAC, examination or complete treatment of every clause of a broad curriculum requirement.