Understand capacities, cuts and the maximum-flow minimum-cut relationship.

Key knowledge | Free preview

Learning target: Understand capacities, cuts and the maximum-flow minimum-cut relationship.

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.

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https://resources.aspiretopowerlearning.com.au/vce/skills/aspire-internal-gm-u34-o1-aos2-networks-kk-04/

Study-design reference

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

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

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