Interpret logic gates and the circuits assembled from them

Key knowledge | Free preview

Learning target: Interpret logic gates and the circuits assembled from them.

Boolean algebra treats truth values through operations such as AND, OR and NOT. A circuit implements the resulting expression with gates. Simplifying a circuit requires an equivalent expression for every input combination, so use a law-based derivation or a complete truth table to justify a proposed replacement.

Try the mathematics

Task 1. A circuit has output (p AND q) OR (p AND NOT q). Describe its gates, simplify the expression using Boolean laws, and specify the replacement circuit.

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-kk-13/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 1; Outcome 1; Key knowledge; bullet 13; p. 61.

The learning target is a concise paraphrase. Aspire reference: sm-u1-o1-kk-13. This is an internal identifier, not an official VCAA code.

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