Know the structure and reasoning of mathematical induction

Key knowledge | Free preview

Learning target: Know the structure and reasoning of mathematical induction.

Induction establishes a family of statements through a base case and a justified transition. The induction hypothesis concerns an arbitrary index, so it may be used inside an algebraic or matrix calculation. The resulting proof must state its integer domain and cannot be replaced by checking many numerical cases.

Try the mathematics

Task 1. Prove that 5 divides 6^n-1 for every integer $n \geq 1$. Explain why the same reasoning does not claim the expression is divisible by 5 for every real n.

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-u34-o1-kk-02/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Units 3–4; Outcome 1; Key knowledge; bullet 2; p. 114.

The learning target is a concise paraphrase. Aspire reference: sm-u34-o1-kk-02. 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.