Understand pigeonhole reasoning, permutations, combinations, inclusion–exclusion and simple counting identities

Key knowledge | Free preview

Learning target: Understand pigeonhole reasoning, permutations, combinations, inclusion–exclusion and simple counting identities.

Choose a counting model before calculating. Order matters for permutations; a selection without order uses combinations. Inclusion–exclusion corrects duplicated membership, while a pigeonhole argument proves a repeated category must occur. Identities can be established by counting the same collection in two different ways.

Try the mathematics

Task 1. From eight different students, count a three-person ordered podium and a three-person committee. Count the distinct arrangements of AABC. Explain each difference.

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/sm-u1-o1-kk-05/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Specialist Mathematics; Unit 1; Outcome 1; Key knowledge; bullet 5; p. 61.

The learning target is a concise paraphrase. Aspire reference: sm-u1-o1-kk-05. 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.