Explain the determinant criterion for a matrix inverse.

Key knowledge | Free preview

Learning target: Explain the determinant criterion for a matrix inverse.

For a two-by-two matrix, the determinant decides whether the inverse exists. A nonzero determinant permits an inverse that reverses the matrix operation. In a system Ax=b, multiplying by A inverse gives the candidate solution. Check it in the original equations, since that also guards against entry-order or input errors.

Try the mathematics

Task 1. Let A=[[2,1],[1,1]]. Find det(A), A inverse, and solve A[[x],[y]]=[[11],[7]].

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-matrices-kk-02/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). General Mathematics; Units 3–4; Outcome 1; Key knowledge; Matrices; bullet 2; p. 91.

The learning target is a concise paraphrase. Aspire reference: aspire-internal-gm-u34-o1-aos2-matrices-kk-02. This is an internal identifier, not an official VCAA code.

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