Model population change including culling or restocking with a matrix recurrence.

Key skills | Free preview

Learning target: Model population change including culling or restocking with a matrix recurrence.

An affine matrix recurrence adds a fixed change vector after the transition step. Its entries may represent restocking or culling, with the order of events affecting the result. A mathematically computed negative population is not meaningful, so check available numbers before applying a fixed cull. Equilibrium balances transition flows and the external additions or removals.

Try the mathematics

Task 1. T=[[0.8,0.2],[0.2,0.8]], S0=(120,80), and B=(10,-10). Use S(n+1)=TS(n)+B to calculate S1 and S2. Interpret the entries of B and state when they are applied.

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/aspire-internal-gm-u34-o1-aos2-matrices-ks-04/

Study-design reference

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

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

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