Practice worksheet | Matrix models

Powers and numbers of connections

Name: _____ Date: _____

6 questions | 18 marks

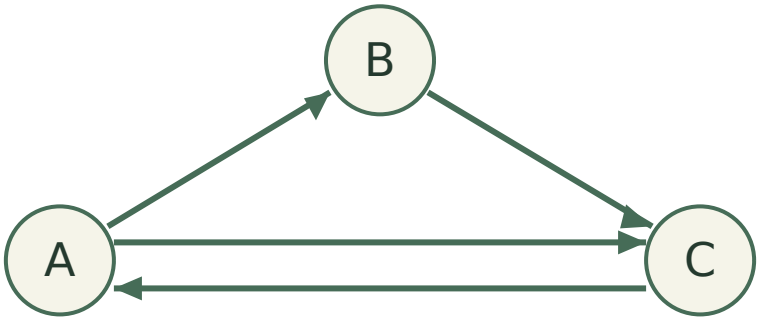
1. For rows A: $\begin{pmatrix} 0 & 1 & 1 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{pmatrix}$, find A^2. [3 marks]

2. For that A, find $(A^3)_{AC}$ and interpret it. [3 marks]

3. In the undirected path A-B-C, count two-step walks from A to C and from A to A. [3 marks]

4. Two vertices have one arrow in each direction and no loops. Find the square of their adjacency matrix. [3 marks]

5. For the illustrated network, count A-to-C walks using one or two steps. [3 marks]



Each arrow is one permitted move.

6. Why does a positive entry in A^5 not guarantee a journey through five different vertices? [3 marks]