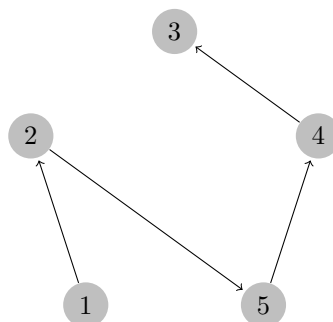


Answer the questions in the spaces provided on the question sheets. If you run out of room for an answer, continue on a separate sheet of paper.

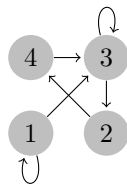
1. Define the directed graph G as follows:



- (a) Find G^2 .

- (b) Find G^+ .

2. Define the directed graph G as follows:



(a) Complete the *adjacency matrix*, A , for G .

$$\begin{bmatrix} & & & \\ & & & \\ & & & \\ & & & \end{bmatrix}$$

(b) Compute A^2 .

$$\begin{bmatrix} & & & \\ & & & \\ & & & \\ & & & \end{bmatrix}$$