

# CS 228, Graph Connectivity

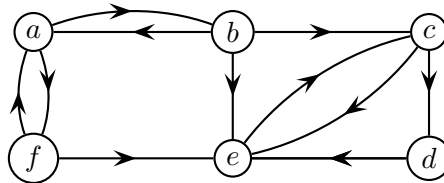
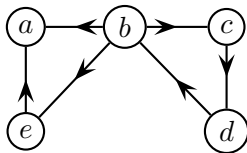
Name:

Some questions are from **Discrete Mathematics and Its Applications 7e** by Kenneth Rosen.

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Some questions below will refer to the following two graphs:

- Determine whether the following graphs are strongly or weakly connected. For graphs that are not strongly connected, find the strongly connected components.

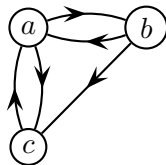


- Draw  $K_{2,4}$  and  $K_{5,3}$ .

- Determine the following values:

- $\kappa(K_{2,4})$
- $\lambda(K_{2,4})$
- $\kappa(K_{5,3})$
- $\lambda(K_{5,3})$

- What is the adjacency matrix for the following graph?



- Determine the number of distinct paths of length three from  $a$  to  $b$  in the previous graph by calculating  $\mathbf{A}^3$ .