

1 Show the graph associated with the matrix  $A$  whose pattern is shown on the right

2 Find a BFS ordering of the graph starting from node 1.

3 Read about the Cuthill McKee (CMK) ordering in the notes [a trivial variant of BFS]. Find the CMK ordering for  $A$ .

$$\begin{pmatrix} 1 & * & & * & & \\ * & 2 & * & & & \\ & * & 3 & & * & * \\ * & & & 4 & & * \\ & & * & & 5 & \\ & & * & * & & 6 \end{pmatrix}$$

4 The reverse CMK ordering lists the nodes in the CMK ordering backward Show the adjacency graph and the corresponding matrix  $B$  reordered by the \*reverse\* Cuthill McKee ordering.