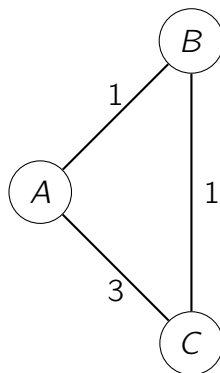


Pre-lecture exercises will not be collected for credit. However, you will get more out of each lecture if you do them, and they will be referenced during lecture. We recommend writing out your answers to pre-lecture exercises before class. Pre-lecture exercises usually should not take you more than 30 minutes.

## Pre-Lecture Exercises

Consider the following graph, where the *weights* (the numbers on the edges) are meant to represent the cost of walking along an edge.



1. Suppose you do BFS starting at the node  $A$ . What does BFS find as the shortest path from  $A$  to  $C$ ?
2. If you take the weights into account, what is the shortest path from  $A$  to  $C$ ? (By “take the weights into account” we mean add up the weights along each path the get the length of a path. So, with the weights, the cost of the path  $A \rightarrow C \rightarrow B$  would be  $3 + 1 = 4$ .)
3. Try to think about how you would design an algorithm to find shortest paths in weighted graphs. Can you modify BFS to do it?