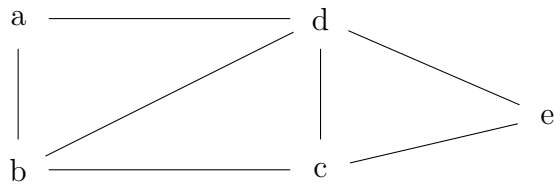
Paths

List all the paths from b to e in graph G below.

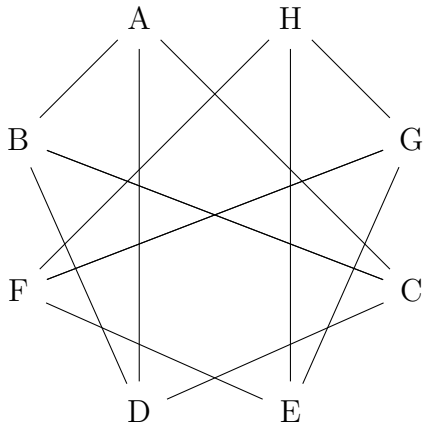
G



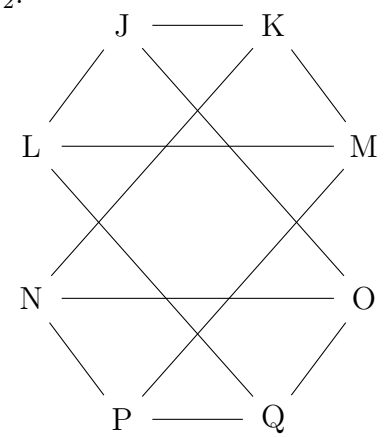
Solution:

Component Is each of these graphs connected? If not, list the nodes in each connected component.

G_1:

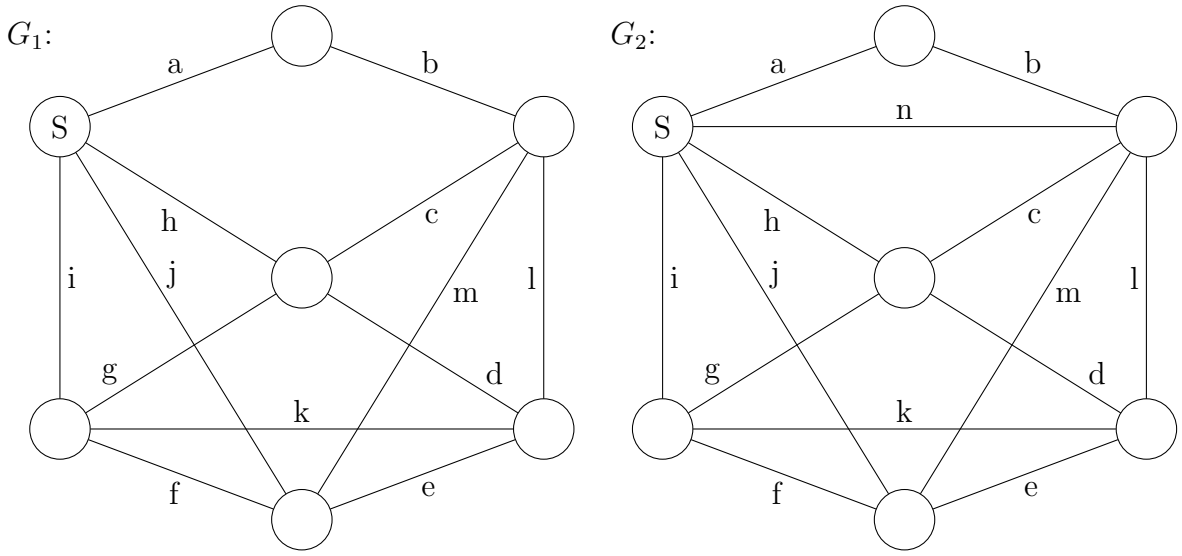


G_2:



Solution:

Euler Circuits Find an Euler circuit in each graph beginning at S, or explain why this isn't possible.



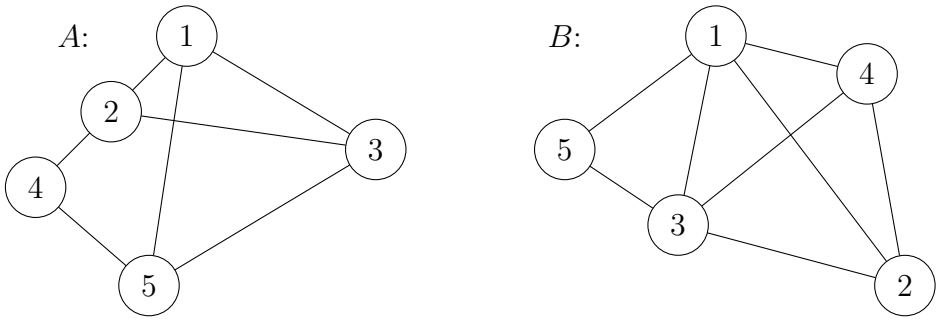
Solution:

Chromatic Number

Recall that the justification that a particular chromatic number is valid requires bounding the number from above *and* below. Therefore you must give an *explicit* coloring to produce an upper bound *and* produce a valid argument that no smaller number of colors will work to produce a lower bound.

The argument justifying the lower bound often involves finding a copy of K_n (where n is the chromatic number you are attempting to validate) as a subgraph. Sometimes, however, you have to work through the space of possible $n-1$ colorings by hand and show that none of them work.

Find and justify the chromatic numbers for each of the following graphs.



Solution: