CSE 191 Recitation

5/1/23 - 5/5/23 - Graphs

Graph Examples

Consider the following degree sequence: 6 4 4 4 2 2 2

How many edges must any graph with this degree sequence have?

Is it possible for this graph to be simple? Why or why not?

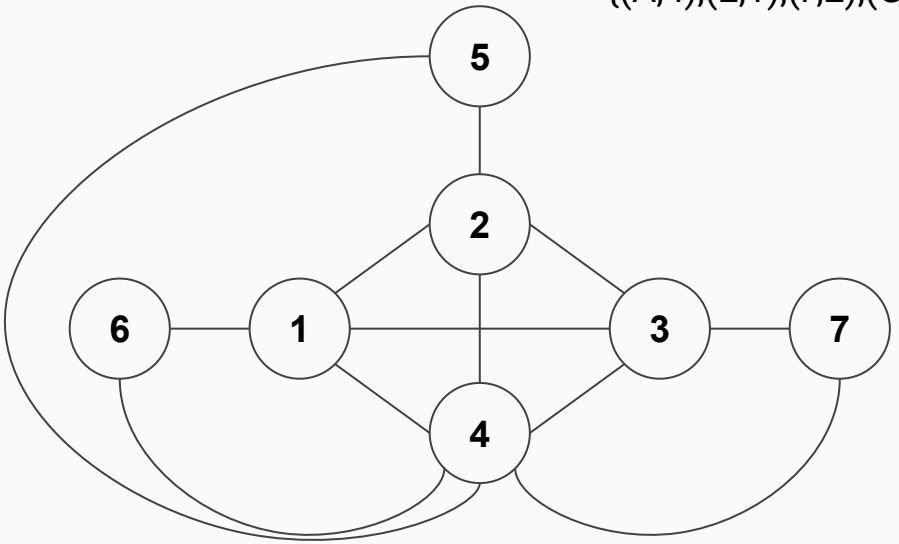
Draw a connected graph with this sequence of degrees.

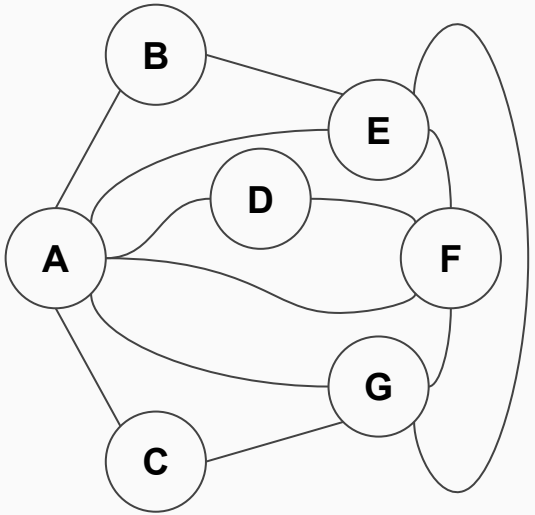
Draw another graph (connected or unconnected) that is isomorphic to the first.

Write out the isomorphism.

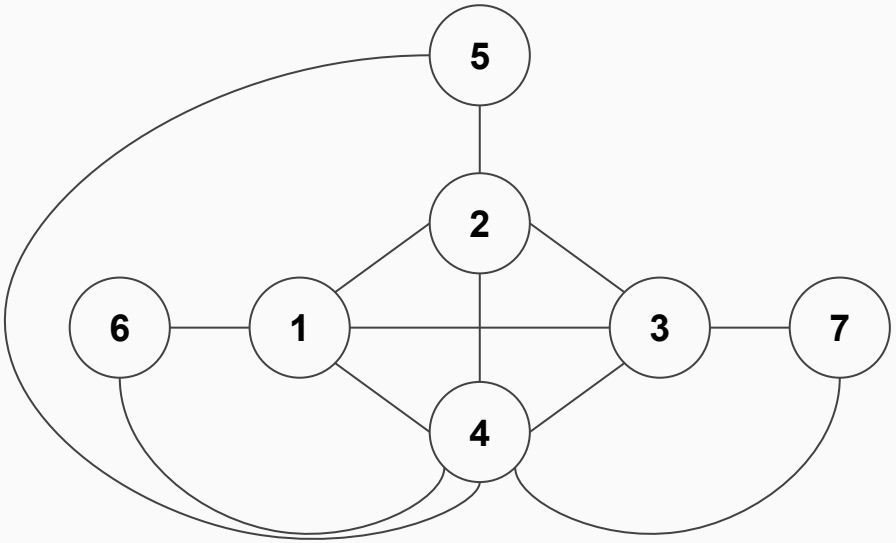
Graph Representation

{(A,4),(E,1),(F,2),(G,3),(B,6),(C,7),(D,5)}





Graph Representation



{(A,4),(E,1),(F,2),(G,3),(B,6),(C,7),(D,5)}

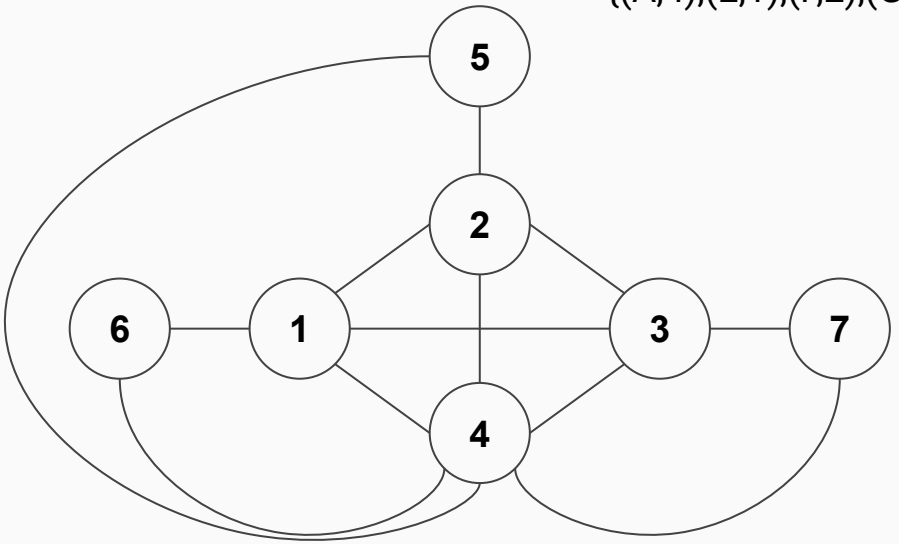
Provide a valid coloring for this graph with as few colors as possible.

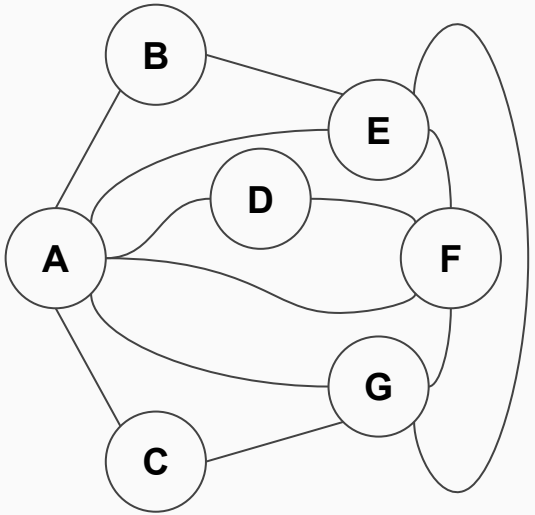
Find an Euler Circuit in this graph, or prove there cannot be one.

Use your isomorphism to provide a coloring and Euler Circuit for the other graph on the previous slide without looking at it.

Graph Representation

{(A,4),(E,1),(F,2),(G,3),(B,6),(C,7),(D,5)}





Trees

For the tree to the right:

1. What is the root?
2. What is the depth of ***b***? ***e***?
3. What is the height of the tree?
4. What are the leaves?
5. What are the children of ***e***?
6. What are the descendents of ***e***?
7. What is the parent of ***f***?
8. What are the ancestors of ***f***?
9. What is the largest degree of any node in the tree?
10. What is the chromatic number of the tree?