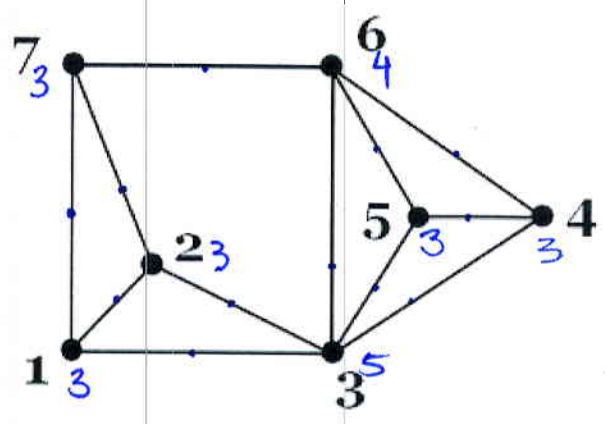


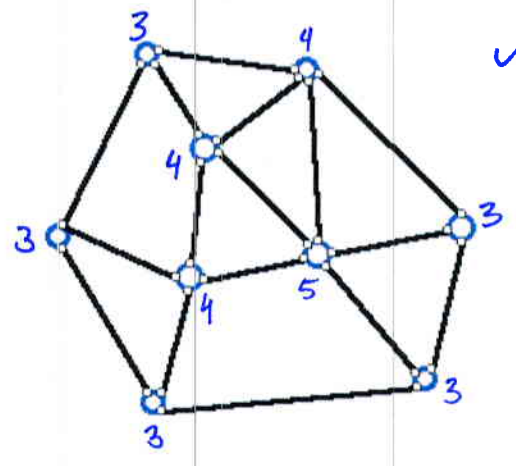
**Instructions:** Show all work. Answer each question as completely as possible. Use exact values. For counting problems you may use scientific notation (with three significant figures) for any numbers larger than a million.

1. Consider the graph below. For each labeled vertex, state the degree. How many edges does the graph have? Is the graph connected? Does it contain any bridges? Explain your reasoning.



12 edges  
connected  
no bridges

2. Consider the graph below. Determine if the graph has an Euler circuit. If it does, find it. If it does not, does it have an Euler path? If it does, find it. If neither of these is true, explain why not.



no circuit or path  
too many odd vertices