Math 110: Assignment 13, Part 2. Name _____

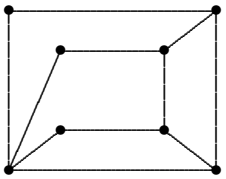
Due Friday, April 30 at 2:00 pm. Neatness counts. Attach additional pages if needed.

5. a) Fill in the blank: At the end of class today we stated *Euler's Circuit Theorem:* A connected graph G has an Euler circuit if all of its vertices have _____ _____. A graph does NOT have an Euler circuit if it has a vertex with _____ _____.

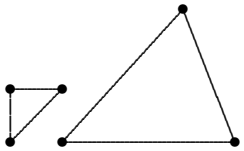
b) Label each of the vertices in the graphs below with its degree.

c) Which of the following graphs have an **Euler circuit**? For any graphs that do have Euler circuits, indicate the circuit by numbering the edges in order. Explain briefly how you can tell which had circuits.

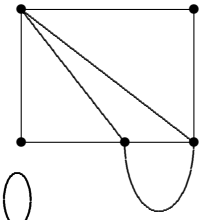
d)



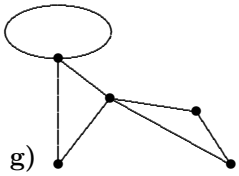
e)



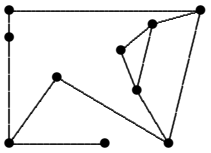
f)



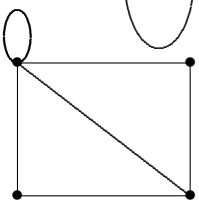
g)



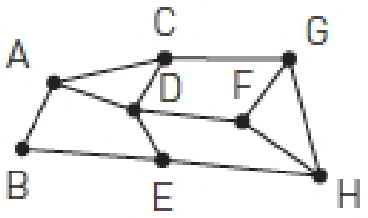
h)



i)



6. Under-edged. Is it possible to traverse the graph below with an Euler circuit? If so, find and label such a path. If not, add the fewest number of new edges to existing vertices until such a path is possible. (Remember that edges can be curved.) Draw and label your circuit.



7. Write one good question for the final exam that comes from the material covered on Exams 1 and 2 (before voting). I will pick the best one(s) to use for the final. Write out the answer on the back. If your problem is chosen, you won't have to do it on the exam.

Problem	Points	Score
1	15	
2	14	
3	4	
4	16	
5	22	
6	5	
7	5	
Total	80	