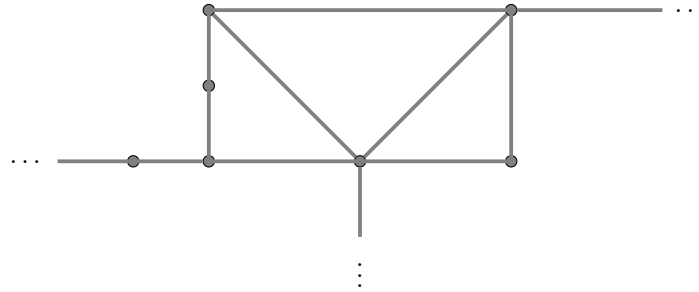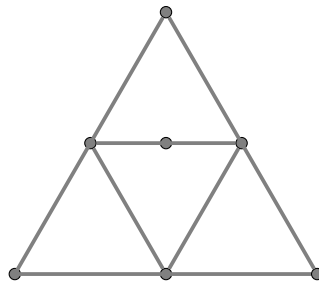# Math 1015: Homework #11

Question 1. This is a small portion of a larger graph:
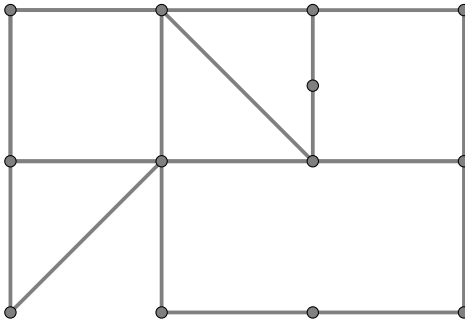

a) Draw this graph, and indicate any edges which *must* be used in a Hamilton circuit, if it exists.

b) Draw the graph again, indicating any edges which you know *cannot* be used in a Hamilton circuit, given the ones that you have already chosen in the previous part.

c) Assuming additionally that we must use the edge which leaves the picture on the right side, decide for each of the other edges whether or not it would be used in a Hamilton circuit.

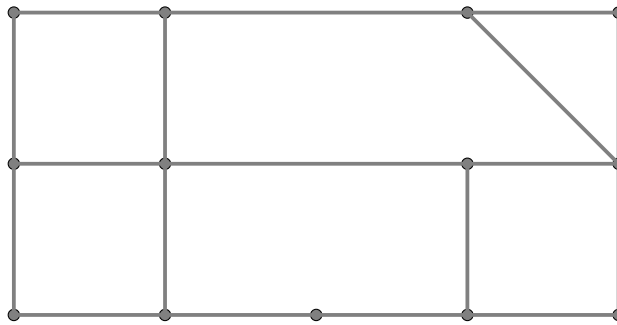**Question 2.** Please explain why no Hamilton circuit can exist in this graph.

Question 3. For each of these, please find a Hamilton circuit in this graph, or explain that none can exist. (You should use the method we described in class— this will involve no guessing.)
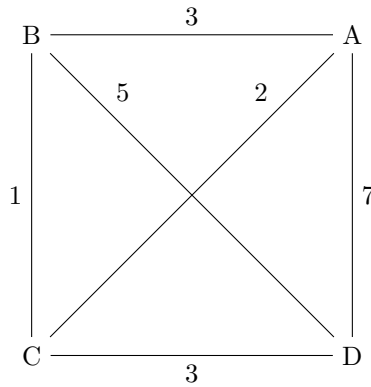
a)

b)

Question 4. For this graph:

Please find the minimal weight Hamilton circuit starting at A using the brute force algorithm.