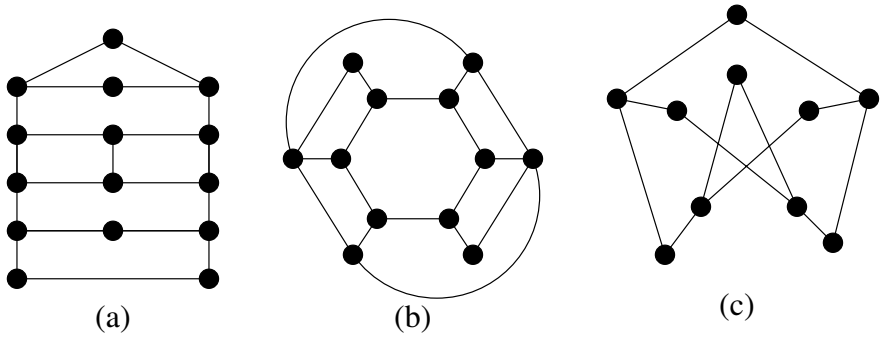
Math 142, problem set 02
Outline due: Wed Aug 31
Final version: Wed Sep 07

Problems to be turned in:

1. (1.3) 10.

2. For each of the following graphs, either show that the graph is bipartite by finding a 2-coloring of the graph, or explain how you know that the graph is not bipartite.



3. (1.4) 6.

4. (1.4) 16.

5. (1.4) 20.

6. (a) Make a connected graph G_1 whose vertices have degrees 1, 3, 3, 4, 4, 5. Add as few edges as possible to G_1 to create a new graph (possibly a multigraph) G_2 that has an Euler cycle.

   (b) Given any connected graph G_1 with v vertices, explain how to add at most $v/2$ edges to G to create a new graph (possibly a multigraph) G_2 that has an Euler cycle. (Your explanation should basically be an algorithm. Make sure to explain how you know that you add at most $v/2$ edges and that your method works.)