

## Midterm 2 Review

## Math & Society

*The following problems are similar to ones you might see on the midterm exam. There is also a list of terms & facts you should memorize on the last page.*

1. Apportionment question - Hamilton's method
2. Find an Euler path if there is one...
3. Draw a tree that has a degree 4 vertex, a degree 3 vertex, and a degree 2 vertex.
4. Use the mileage chart below to find the minimum spanning tree connecting these five cities.

	Boston	Buffalo	Chicago	Columbus	Louisville
Boston	–	446	963	735	941
Buffalo	446	–	522	326	532
Chicago	963	522	–	308	292
Columbus	735	326	308	–	209
Louisville	941	532	292	209	–

5. Which of the following graphs must be a tree? Circle all that are.
  - A. An ancestry graph. People are vertices; edges connect parents to their children.
  - B. Friends network. People are vertices; edges connect people who are friends.
  - C. Railway network. Cities are vertices; railway routes are the edges.
  - D. Markov chain graph strongly connected components. Strongly connected components are the vertices; Two components share an edge if it is possible to get from one to the other.