Math 456/556: Networks and Combinatorics
HW #6, due Wednesday, 2/24

The following problems from the textbook are **not** to be turned in:

Chapter 11: 5, 14, 20, 29, 30, 49, 68.

The following problems are to be turned in:

6.1 Let G be the graph with vertices $\{1, \ldots, 101\}$ and an edge between i and j if and only if $i \times j$ is even. Determine whether G has

a) a closed Eulerian trail
b) an open Eulerian trail
c) an open Hamilton path
d) a Hamilton cycle.

6.2 Let G be the graph consisting of the vertices and edges of a 17-dimensional cube. More precisely, G has 2^{17} vertices given by all possible ordered 17-tuples of zeros and ones. (For example, one of its vertices is $(0, 0, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1, 1, 1, 1, 1, 0)$.) Two vertices are connected by an edge if and only if they differ in exactly one coordinate. Show that G is bipartite, and that it admits a perfect matching.