Math 456/556: Networks and Combinatorics
HW #7, due Wednesday, 3/2

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

Chapter 12: 5, 11, 14, 16, 18, 21, 26.

The following problems are to be turned in:

7.1 Compute the chromatic number, the chromatic polynomial, and the number of 3-colorings of the complete bipartite graph $K_{2,3}$.

7.2 Let $p(k) = k(k-1)(k-2)(k-3)(k-4)(k-5)^2$ and $q(k) = k(k-1)(k-2)(k-3)(k-4)(k-6)^2$.

a) Is $p(k)$ the chromatic polynomial of any graph? If so, then find such a graph, and determine its chromatic number. If not, why not?

b) Same for $q(k)$.

c) Answer parts (a) and (b) with "graph" replaced by "planar graph".