Problem Set 10 — Due Wednesday, March 9, 1999

Problem 1. A graph $G = (V, E)$ is said to be *k-colorable* if there is a way to paint its vertices using colors in $\{1, 2, \ldots, k\}$ such that no adjacent vertices are painted the same color. When k is a number, by k*COLOR* we denote the language of (encodings of) k-colorable graphs. The language *3COLOR* is NP-Complete. (You can assume this.) Use this to prove that the language *4COLOR* is NP-Complete, too.

Problem 2. Page 273, Problem 7.22.

Problem 3. Page 273, Problem 7.24.

Problem 4. Page 274, Problem 7.26.