Problem Set 10 — Due Wednesday, June 3, 10:45 am

Note the unusual day for this (minimal) assignment being due.

Problem 1. Let SAT20 = $\{\langle\phi\rangle : \phi$ has at least twenty different satisfying assignments$\}$. Show that SAT20 is NP-complete.

Problem 2. 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. Let G3C denote the language of encodings of 3-colorable graphs. Let G4C denote the language of encodings of 4-colorable graphs. The language G3C is NP-Complete. (We will prove this on Monday.) Use this to prove that G4C is NP-Complete, too.