Homework today is short. I hope that that's okay with you. :)

Don't solve Problem 7.29, but do read it. It generalizes as follows. Define

$$COLOR = \{\langle G, j\rangle : G \text{ is an undirected graph that is colorable with } j \text{ colors}\}.$$

This problem sounds vaguely like the other abstract graph problems that we've studied, such as *CLIQUE* and *VERTEX-COVER*. Are you growing tired of these problems? Maybe you're wondering whether they have any practical value?

Don't solve Problem 7.31, which is about scheduling exams, but do read it. Scheduling problems like this show up throughout society — for example, when airlines need to schedule airplanes with crews with routes.

A. Formulate the exam-scheduling problem as a language A. Prove that $A \leq_p COLOR$. (Hint: What must be avoided in an example of A, and what must be avoided in an example of *COLOR*? Those features should correspond to each other. Work backward from that idea.)