

Homework 7

Due at the beginning of class, May 1, 2006
No late papers accepted

Solve the following exercises in the textbook:

1. Exercise 35.3-2, page 1038: Show that the decision version of the set-covering problem is NP-complete by reduction from the vertex-cover problem.
2. Exercise 35.4-3 page 1043: In the MAX-CUT problem, we are given an unweighted undirected graph $G=(V, E)$. We define a cut $(S, V-S)$ as in Chapter 23 and the weight of a cut as the number of edges crossing the cut. The goal is to find a cut of maximum weight. Suppose that for each vertex v , we randomly and independently place v in S with probability $\frac{1}{2}$ and in $V-S$ with probability $\frac{1}{2}$. Show that this algorithm is a randomized 2-approximation algorithm.