

CSE 725 - Problem Set 2

Due lecture on May 19th

Problem numbers are from the second edition of Sipser's book. If unsure about which problem to solve, ask. Collaboration is permitted; looking for solutions from external sources (books, the web, etc.) is prohibited.

1. 7.17
2. *7.34
3. *7.36
4. 7.44
5. (extra credit) Is the following problem NP-complete?

Given rational vectors $x_1, x_2, \dots, x_n \in \mathbb{R}^d$ and a rational number $k \in \mathbb{R}$, determine whether there exists a non-empty set $S \subseteq \{1, \dots, n\}$ such that $\|\sum_{i \in S} x_i\| \leq k$.

For this problem you are allowed to check any external sources.