

Homework 4

Lecturer: Sasha Boldyreva

Due: February 28, 2008

Assignment 3.01 Do the assigned reading.

Assignment 3.02 Indicate how much time did you spend on this homework.

In all problems do not just give an answer, but explain your reasoning.

Problem 4.1, 5 points. Problem 16 from Section 3.2 of Rosen's textbook.

Problem 4.2, 5 points. Problem 18 from Section 3.2 of Rosen's textbook.

Problem 4.3, 15 points. Problem 24 from Section 3.2 of Rosen's textbook.

Problem 4.4, 6 points. Problem 32 from Section 3.2 of Rosen's textbook.

Problem 4.5, 10 points. Prove that if $f(n) = O(g(n))$ and $h(n) = O(g(n))$, then $f(n) + h(n) = O(g(n))$.

Problem 4.6, 5 points. Problem 24 from Section 3.3 of Rosen's textbook.

Problem 4.7, 5 points. Give an example of a function $f(n)$ which is $O(1)$. Write any algorithm that takes input of size n and has $O(1)$ running time. Describe in words what does your algorithm do, and what do you consider to be a basic operation.