

Homework 3

Lecturer: Sasha Boldyreva

Due: February 3, 2009

Problem 3.1, 10 points. Let $a_1 = 2$, $a_2 = 9$, and $a_n = 2a_{n-1} + 3a_{n-2}$ for $n \geq 3$. Use strong induction (the Second Principle of Mathematical Induction) to show that $a_n \leq 3^n$ for all positive integers n .

Problem 3.2, 7 points. Problem 14 from Section 4.2 of Rosen's textbook.

Problem 3.3, 7 points. Problem 32 from Section 4.2 of Rosen's textbook.

Problem 3.4, 10 points. Problem 38 from Section 4.4 of Rosen's textbook.

Problem 3.5, 20 points. Problem 18a from Section 7.3 of Rosen's textbook.