

21-301 Combinatorics
Homework 7
Due: Friday, November 6

1. Given a set of $n^2 + 1$ positive integers, show that either there exists a subset A of size $n + 1$ such that either (1) no element of A divides another element of A , or (2) for every $a, b \in A$ with $a < b$, we have a divides b .
2. (a) How many strings of length n consisting of 0's and 1's have no two consecutive 1's?
(b) How many strings of length n consisting of 0's and 1's have no three consecutive 1's and no three consecutive 0's?
3. Find a_n if

$$a_n = 6a_{n-1} + 7a_{n-2}, a_0 = 2, a_1 = 10.$$