

CS 1050 H: Understanding and Constructing Proofs

Homework 5

Due Wed, April 1, 2003

1. How many arrangements are there of the letters in SOCIOLOGICAL? In how many of these arrangements are A and G adjacent? In how many of these arrangements are all the vowels adjacent?
2. How many distinct 4 digit integers can one make using 1,3,3,7,7,8?
3. In how many ways can 7 people be seated on a circular table if two of the people insist on sitting next to each other?
4. (a) How many distinct arrangements are there of the letters in UNUSUALLY?
(b) In how many of these arrangements are all three U's together?
(c) How many arrangements are there that don't have the two L's together?
5. **3** Eight cards are drawn at random from a full deck. How many ways are there of getting the following outcomes:
 - (a) Two full ranks (i.e., four-of-a-kind),
 - (b) A sequence,
 - (c) Four pairs, without any full ranks.