

Math 688 Homework #1

Due Date: Feb. 19, 2008

1. Find as simple a solution as possible for each of the following problems.
 - (a). How many subsets of the set $[10] = \{1, 2, \dots, 10\}$ contain at least one odd integer?
 - (b). Ten people split up into five groups of two each. In how many ways can this be done?
 - (c). In how many different ways can the letters of the word MISSISSIPPI be arranged if the four S's cannot appear consecutively?
 - (d). How many sequences $(a_1, a_2, \dots, a_{12})$ are there consisting of 4 0's and 8 1's, if no two consecutive terms are both 0's?
 - (e). How many functions $f : [5] \rightarrow [5]$ are at most 2-to-1 (i.e., $|f^{-1}(n)| \leq 2$ for every $n \in [5]$)?
2. Problem 13J, page 128.
3. Problem 13A, page 120.
4. Problem 13B, page 121.
5. Problem 13D, page 122.
6. Problem 13E, page 122.