

Homework 7, Due Wednesday, February 27, 2008

Problem 1:

Section 5.1, Problem 22. (Fifth edition: Section 4.1, Problem 20.)

Problem 2:

Section 5.1, Problem 30 c, d, g, h (Fifth edition: Section 4.1, Problem 28 c,d, g, h)

Problem 3:

How many bit strings of length 10 contain five (or more) consecutive 0s or five (or more) consecutive 1s.

Problem 4:

Section 5.2, Problem 10. (Fifth edition: Section 4.2, problem 10). Hint: odds and evens.

Problem 6:

Section 5.3, Problem 20. (Fifth edition: Section 4.3, problem 20).

Problem 7:

Section 5.3, Problem 26. (Fifth edition: Section 4.3, problem 26).

Extra Credit 5:

For any given n , show that there is a sequence of n^2 distinct numbers that has longest increasing subsequence of length n , and longest decreasing subsequence of length n . (You do not need to use induction on this problem).

Extra Credit 8:

Assume that friendship is always mutual; that is, if A is a friend of B, then B is also a friend of A. Show that under this assumption, in any group of at least two people there are always two people who have exactly the same number of friends within the group. (Also, for this problem, a person is not a friend of himself or herself.)