Discrete Structures. CSCI-150. Fall 2013.

Homework 3. Due Wed. Sep 25, 2013.

Problem 1

A *palindrome* is a string whose reversal is identical to the string.

(a) How many bit strings of length 4 are palindromes?

(b) How many bit strings of length 5 are palindromes?

(c) How many bit strings of length 6 are palindromes?

(d) How many bit strings of length n are palindromes?
(You can provide two formulas: One when n is even, and another when it's odd).

Problem 2

How many bit strings of length 10 either begin with three 0s or end with two 0s?

Answer: 352.

Problem 3

(a) How many bit strings of length 10 contain five consecutive 0s?
Answer: 112.

(b) How many bit strings of length 10 contain either five consecutive 0s or five consecutive 1s?
Answer: 222.