CprE 528, Spring 2014 Probabilistic Methods in Computer Engineering

Homework 3

Due: Tue, Mar 4

Policy

This is a *collaborative* homework. You are allowed to discuss the problems with other students. But, the write up should be written by yourself without help from others.

Problem 3.1

In a lecture hall containing 100 people, let X denote the number of triples of people all of whom share a birthday. Compute the following (you can use a computer for the second question).

   a. $E[X]$

   b. $\Pr[X = 0]$

Problem 3.2

Exercise 4.2, Page 83 (Six-Sided Die).

Problem 3.3

Exercise 4.5, Page 83 (Opinion Poll).

Problem 3.4

Exercise 4.9, pages 84-85 (Estimation using sampling).

Problem 3.5

Exercise 4.11 (Page 85), Chernoff bound for a new type of random variable.