Math 375: Probability Theory
Spring 2018
Homework 3

- Exercises from the text: 3.1, 3.2, 3.4, 3.6, 3.7, 3.10, 3.12, 3.14, 3.17, 3.21, 3.22, 3.25, 3.33, 3.34

- Non-textbook problems.

  1. Suppose two fair 6-sided dice are rolled. Let Y be the difference (larger minus smaller) of the two values. Find the probability distribution for Y. Find the expected value and standard deviation of Y.

  2. A student takes a quiz consisting of 4 multiple choice questions, each with four options. The probability that the student knows the answer to each question is 0.6. On questions the student doesn't know the answer to, suppose he guesses randomly. Let Y be the number of questions the student answers correctly. Find the probability distribution, expected value and standard deviation of Y.