Homework 3(Due on September 19)

September 12, 2013 STA 4442/5440

Problems from the Sheldon Ross book (8th Edition) Chapter 3

Page 102-104: Problem no. 3.11, 3.12, 3.22, 3.24, 3.35, 3.38

Extra problems

1. Consider an experiment where 2 balls are drawn from a bin containing 3 red balls and 2 green balls (the balls are not replaced between draws). Define the events A, B, and C as follows: A=Both balls are red, B=Both balls are green, C=The first ball is red

   (a) What is the sample space for this experiment ?

   (b) What is the probability associated with each of the sample points ?

   (c) Find the probability of A, B, and C.

   (d) Find $P(A \mid B)$ and $P(B \mid A)$.

   (e) Are the events A and B independent, mutually exclusive, or dependent in some other way?

   (f) Find $P(A \mid C)$ and $P(C \mid A)$.

   (g) Are the events A and C independent, mutually exclusive, or dependent in some other way?

2. Consider a fair 6 sided dice where one side is labeled 1, one side is labeled 5, and the others are all labeled 0. The die is rolled twice. Define the events A, B, and C as follows: A=The first die is a 1, B=The first die is a 5, C=The second die is a 0

   (a) What is the sample space for this experiment?

   (b) What is the probability associated with each of the sample points?

   (c) Find the probability of A, B, and C.

   (d) Find $P(A \cap B)$ and $P(A \cup B)$.

   (e) Are the events A and B independent, mutually exclusive, or dependent in some other way?

   (f) Find $P(A \cap C)$ and $P(A \cup C)$.

   (g) Are the events A and C independent, mutually exclusive, or dependent in some other way?