Math 4740 - Test 2 Study Guide

Test 2 covers:

- HW 3 and HW 4 and HW 5

Here is a breakdown of the topics.

Homework 3:
(Note problems 11, 12 from HW 3 are not on the test.
They are optional to do if you want to do them.)

- Checking if two events are independent or not.
  Problems 1, 2.

- Conditional probability.
  Problems 3, 7, 8.

- Law of total probability. Can use formula or draw tree.
  Problems 4, 5, 6.

- Doing independent experiment over and over until either event A or B happens. Computing the probability A occurs before B with the formula P(A) / (P(A) + P(B))
  Problems 9, 10.

Homework 4:
(Note problems 7, 8 from HW 4 are not on the test.
They are optional to do if you want to do them.)

- Calculating $P(X = k)$, $P(X <= k)$, $P(X > 0)$, and $E[X]$. Drawing a picture of p and F.
  Problems 1, 2, 5, 6.

- Roulette and $E[X]$ and $P(X > 0)$
  Problem 3.

- Poker and $E[X]$
  Problem 4.

Homework 5:

- Calculating probabilities and $E[X]$ for a binomial random variable X. The problems use coins, dice, cards, and roulette.
  Problems 1 – 5.