Assignment #8

Due on Friday, February 14, 2014

Read Chapter 3 *Random Variables* in the class lecture notes at
`http://pages.pomona.edu/~ajr04747/`

Read Section 3.1 on *Random Variables and Discrete Distributions* in DeGroot and Schervish.

Do the following problems

1. A bowl contains 12 chips of the same size and shape. Four of these chips are red and the others are blue. Draw three chips from the bowl at random, one at a time and **without replacement**. Let X denote the number of red chips in the three draws. Determine the pmf of X and compute its cumulative distribution function.

2. A bowl contains 12 chips of the same size and shape. Four of these chips are red and the others are blue. Draw three chips from the bowl at random, one at a time and **with replacement**. Let X denote the number of red chips in the three draws. Determine the pmf of X and compute its cumulative distribution function.

3. A bowl contains 12 chips of the same size and shape. Four of these chips are red and the others are blue. Draw chips from the bowl at random, one at a time and **without replacement**. Let X denote the number of draws needed to get a red chip. Determine the pmf of X and compute $\Pr(X \leq 3)$.

4. A bowl contains 12 chips of the same size and shape. Four of these chips are red and the others are blue. Draw chips from the bowl at random, one at a time and **with replacement**. Let X denote the number of draws needed to get a red chip. Determine the pmf of X and compute $\Pr(X \leq 3)$.

5. Five cards are chosen at random from a standard, well shuffled deck of cards. Let X denote the number of hearts in the hand of five. Give the pmf of X.