# *Stat 134: Section 5*

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## *Conceptual Review*

Please discuss these short questions with those around you in section. These problems are intended to highlight concepts from lecture that will be relevant for today's problems.

a. When do we want to use the Poisson distribution? What is the formula?

b. When do we want to use the Hypergeometric distribution? What is the formula?

## *Problem 1*

A cereal company advertises a prize in every box of its cereal. In fact, only about 95% of their boxes have prizes in them. If a family buys one box of this cereal every week for a year, estimate the chance that they will collect more than 45 prizes. What assumptions are you making?

*Ex 2.4.9 in Pitman's Probability*

## *Problem 2*

A deck of cards is shuffled and dealt to four players, with each receiving 13 cards.

a. The probability that the first player holds all the aces

b. Find the probability that the first player holds all the aces given that she holds at least one.

*Ex 2.5.3 in Pitman's Probability*

## *Problem 3*

Eight cards are drawn from a well-shuffled deck of 52 cards. What is the probability the 8 cards contain:

a. two sets of four of a kind (e.g. 4 jacks and 4 kings);

b. exactly 1 set of four of a kind.

*Adapted from 2.rev.16 in Pitman's Probability*