Stat 134: Section 5

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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. Find:

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

b. the probability that the first player holds all the aces given that she holds the ace of hearts;

c. 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

Twelve cards are drawn from a well-shuffled deck of 52 cards. What is the probability the 12 cards contain

a. 4 aces;

b. 4 aces and 4 kings;

c. exactly 2 sets of four of a kind (any ranks).

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