CSE 321 Section, Week 8

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How many ways are there to choose n bagels from 8 kinds when

- n=6

n=12, with at least one of each

How many different strings can be made from the letters in ABRACADABRA, using all the letters?

What is the probability that a 5-card poker hand contains a straight, that is 5 cards that have consecutive kinds (note that the ace can be high or low, but there is no wrap-around)

What is the probability of these events when we randomly select a permutation of the 26 lowercase letters of the English alphabet?

- a immediately precedes m, which immediately precedes z in the permutation?

- m, n, and o are in their original places in the permutation?

Suppose that E and F are events such that $p(E) = 0.7$ and $p(F) = 0.5$. Show that $p(E \cup F) \geq 0.7$ and $P(E \cap F) \geq 0.2$

What is the conditional probability that exactly four heads appear when a fair coin is flipped five times, given that the first flip came up heads?

Let E and F be the events that a family of 2 children has children of both sexes, and has at most one boy, respectively. Are E and F independent?

Suppose that a test for opium use has a 2% false positive rate and a 5% false negative rate. That is, 2% of people who do not use opium test positive for opium, and 5% of opium users test negative for opium. Suppose that 1% iof people use opium.

- Find the probability that someone who tests negative for opium does not use opium

$$p(E \mid F) = \frac{p(E \cap F)}{p(F)}$$

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- Find the probability that someone who tests positive for opium does use opium

$$p(E \mid F) = \frac{p(E \cap F)}{p(F)}$$