

Instructions

Due Week 7 · Friday, October 9

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Complete the following problems and upload your answers as a PDF file to **Blackboard**.

Sample Spaces

1. You are a web designer, and you set up a webpage with four different links. A user of the page can click on one of the links or they can leave the page. Describe the sample space for the outcome of someone visiting that webpage.

Blood Types

All human blood can be ABO-typed as one of O, A, B, or AB, but the distribution of the types varies a bit among groups of people. Below is the distribution of blood types for a randomly chosen person in the U.S.

Blood type	A	B	AB	O
U.S. probability	0.42	0.11	0.03	?

2. What is the probability of type O blood in the United States?
3. Sasha has Type A blood. She can safely receive blood transfusions from people with blood types O and A. What is the probability that a randomly chosen person from the United States can donate blood to Sasha (ignore the RH factor for this exercise, which is another type of blood classification).

Playing Cards

Assume you draw from a well-shuffled standard deck of playing cards.

4. What is the probability of drawing a red jack or a black ace?
5. What is the probability of drawing a non-face card that is a red card (a face card is jack, queen, king, or ace)?

Guilty Verdicts

A district court judge presides over many court cases each day. Let the random variable X = the number of cases on a randomly selected day in which she declares the defendant guilty. The distribution for the random variable X is given below:

# of guilty verdicts	0	1	2	3	4	5
Probability	0.05	0.10	0.20	0.25	0.25	0.15

6. What is the expected value of the number of guilty verdicts in a day?
7. What is the standard deviation of the number of guilty verdicts in a day?