

Data and Chance notes

Chapter 20

Below are terms from the readings. Write definitions and examples in the spaces provided. Answer the questions where indicated.

Chapter 20: The house edge: Expected value

Suppose a random phenomenon has possible outcomes $a_1, a_2, a_3, \dots, a_n$ with probabilities $p_1, p_2, p_3, \dots, p_n$. What is the expected value?

Another name for expected value is “weighted average”. Basically you are averaging the outcomes, giving more consideration to those outcomes that occur more. The following table gives the probability model for a sample I took regarding the number of vehicles in a household. Find the expected number of cars. (Notice how the outcomes with higher probabilities contribute more to the expected value.)

Number of Vehicles	0	1	2	3	4	5
Probability	.03	.25	.32	.20	.15	.05

What is the law of large numbers?

