

Instructions: Answer each question completely. Show all work for any computational questions.

1. What are the rules for a valid probability and probability distribution?

$$0 \leq P(E) \leq 1$$

and

sum of probabilities of all possible events must be 1 (or 100%)

2. How is a personal probability different than an experimental probability?

using based on feelings and subjective impressions rather than repeating an experiment many times to find the proportions of outcomes (this is experimental)

3. What is a sampling distribution? How is it different than a regular probability distribution for a population? How is it related?

it is a probability distribution for the way repeated sample falls around a population parameter. These are typically normal & obey CLT. probability distributions generally only apply to single events rather than collections of events.

4. What does it mean for two probabilities to be independent?

Knowing that one event has occurred does not change the probability that the second event will occur. (and vice versa)

5. Complete the probability table shown below.

Outcome	5	4	3	2	1
Probability	0.2	0.3	0.4	0.05	?

.05

6. Consider the probability model below.

Outcome	A	B	C	D	E
Probability	0.1	0.3	0.3	0.2	0.1

Let 1=A. Let 2, 3, 4=B. Let 5, 6, 7=C. Let 8, 9=D, and let 0=E. Use the random number list below to assign the next 20 letter grades.

43579 10051 94556 66227

How many of each letter grade did you end up with?

2 A's

5 B's

9 C's

2 D's

2 E's