

Week 03 Quiz: Probability

Problem 1

A number between 0 and 1 that is used to measure uncertainty is called:

- (a) Random variable
- (b) Trial
- (c) Simple event
- (d) Probability

Answer: D)

Problem 2.

Probability lies between:

- (a) -1 and +1
- (b) 0 and 1
- (c) 0 and n
- (d) 0 and ∞

Answer: b).

Problem 3

A random experiment contains:

- (a) At least one outcome
- (b) At least two outcomes
- (c) At most one outcome
- (d) At most two outcomes

Answer: B)

Problem 4

A set of all possible outcomes of an experiment is called:

- (a) Combination
- (b) Sample point
- (c) Sample space
- (d) Compound event

Answer: C)

Problem 5

The events that have no experimental outcomes in common are called:

- (a) Equally likely events
- (b) Exhaustive events
- (c) Mutually exclusive events
- (d) Independent events

Answer: C)

Problem 6

When each outcome of a sample space is as likely to occur as any other, the outcomes are called:

- (a) Exhaustive
- (b) Mutually exclusive
- (c) Equally likely
- (d) Not mutually exclusive

Answer: C)

Problem 7

If A is any event in S and \bar{A} its complement, then $P(\bar{A})$ is equal to:

- (a) 1
- (b) 0
- (c) $1 - A$
- (d) $1 - P(\bar{A})$

Answer: D)

Problem 8

The term 'sample space' is used for:

- (a) All possible outcomes
- (b) All possible coins
- (c) Probability
- (d) Sample

Answer: A)

Problem 9

A balance die is rolled, the probability of getting an odd number is:

- (a) $1/2$
- (b) $1/4$
- (c) $1/6$
- (d) $1/36$

Answer: A)

Problem 10

Given $P(A) = 0.4$, $P(B) = 0.5$ and $P(A \cup B) = 0.9$, then:

- (a) A and B are not mutually exclusive events
- (b) A and B are equally likely events
- (c) A and B are independent events
- (d) A and B are mutually exclusive events

Answer: D)

Problem 11

If the random variable X has a uniform distribution between 40 and 50, then $P(35 < X < 45)$ is:

- a. 1.0
- b. 0.5
- c. 0.1
- d. undefined.

Answer: B)

Problem 12

Consider the following probability distribution:

x	0	1	2	3
p(x)	.12	.38	.4	?

Assuming 0, 1, 2, and 3 are all the possible values of x, find $p(3)$.

- A). 0.12
- B). 0.10
- C). 0.45
- D). 0.50

Answer B

Problem 13

Consider the following probability distribution.

X	1	2	3	4	5	6
$P(X)$	0.3	0.2	0.1	0.1	0.1	0.2

Find the probability $P(2 \leq X \leq 4)$.

- A). 0.2
- B). 0.4
- C). 0.1
- D). 0.3

Answer B.

Problem 14

Suppose that, among 10 families, 4 families own a dog, 3 families own a cat, and 4 families own neither. This information is summarized in the following table

	a dog	no dog	total
a cat	1	2	3
no cat	3	4	7
total	4	6	10

A family is chosen at random among the same 10 families as on the above table. What is the probability they own a cat

- A). 0.2
- B). 0.3
- C). 0.4
- D). 0.1

Answer B. $(1+2)/10 = 0.3$

Problem 15

The total duration of baseball games in the major league in the 2011 season is uniformly distributed between 447 hours and 521 hours inclusive. Randomly select a game in the major league, what is the probability that its total duration is 500?

- A). $(500-447)/74$
- B). 0
- C). $(521-500)/74$
- D). $(500-521)/74$

Answer B. The probability of continuous distribution at any specific value is always 0.

Summary of Weekly Assignment #3

stats	value
Min.	70.00
1st Qu.	90.00
Median	95.00
3rd Qu.	100.00
Max.	100.00

