

Assignment 1

AI1110: Probability and Random Variables

Indian Institute of Technology Hyderabad

Aditya Garg
CS22BTECH11002
26 April 2023

10.15.1.4: Which of the following cannot be the probability of an event ?

- 1) $\frac{2}{3}$ 2) -1.5 3) 15% 4) 0.7

Since $0 \leq 0.7 \leq 1$, From (1)

Answer:

Probability of an event E , written as $P(E)$:

It can be a probability of an event.

$$P(E) = \frac{\text{Number of outcomes favourable to } E}{\text{Total Number of possible outcomes in sample space}}$$

From the definition of probability $P(E)$, number of favourable outcomes is always less than or equal to the number of all possible outcomes.

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

- 1) $\frac{2}{3}$

Since $0 \leq \frac{2}{3} \leq 1$, From (1)

It can be probability of an event.

- 2) -1.5

Since $-1.5 < 0$, From (1)

It cannot be a probability of any event.

- 3) 15%

$$15\% = \frac{15}{100}$$

Since $0 \leq \frac{15}{100} \leq 1$, From (1)

It can be probability of an event.