



INDIAN SCHOOL AL WADI AL KABIR

Class: IX	Department: Computer Science
Worksheet No: 3	ARTIFICIAL INTELLIGENCE

Unit 3: Math for AI (Statistics & Probability)

1. Mathematics is broadly defined in the context of AI as the study of:

- A) Hardware
- B) **Patterns**
- C) Electricity
- D) Binary code

2. Why does Artificial Intelligence require Mathematics?

- A) To build physical computer frames.
- B) To increase screen resolution.
- C) **To study and recognize patterns in order to take decisions.**
- D) To cool server rooms.

3. Which mathematical concept is used by AI to find unknown or missing values, such as calculating the total number of cars in a city?

- A) Statistics
- B) Calculus
- C) **Linear Algebra**
- D) Probability

4. Which mathematical approach is specifically used for training and improving AI models, such as determining which line is more slanted?

- A) **Calculus**
- B) Statistics
- C) Linear Algebra
- D) Probability

5. AI uses _____ for exploring data to find middle values or most common values.

- A) Probability
- B) **Statistics**
- C) Calculus
- D) Linear Algebra

6. Which mathematical concept helps AI predict different events, such as whether it will rain tomorrow?

- A) Statistics
- B) Calculus
- C) **Probability**
- D) Linear Algebra

7. Which of the following is the correct definition of Statistics according to the handbook?

- A) The study of computer hardware.
- B) **The process of collecting, exploring, and analyzing data to draw conclusions.**
- C) The study of light and sound patterns.
- D) The process of building robotic joints.

8. Which of the following are examples of descriptive statistics?

- A) Median and correlation
- B) Mode and regression analysis
- C) **Mean and standard deviation**
- D) Variance and Hypothesis testing

9. What is the median of the following dataset: 155, 160, 145, 149, 150, 147, 152, 144, 148?

- A) 147
- B) 150
- C) **149**
- D) 144

10. Authorities use statistics in disaster management to:

- A) Create the disaster itself.
- B) **Alert citizens about natural disasters and evaluate infrastructure in affected areas.**
- C) Stop the rain from falling.
- D) Manufacture emergency food supplies.

11. In sports, statistics showed that COVID-19 cases in Japan sharply increased during the planned period of which event?

- A) The World Cup
- B) The Asian Games
- C) **The Tokyo 2020 Olympics**
- D) Wimbledon

12. Computers use statistics to forecast weather by comparing current conditions with information from:

- A) Future projections only.
- B) **Past seasons and conditions.**
- C) Randomly generated numbers.
- D) The previous day's heat level only.

13. Probability is defined as the ratio of:

- A) Impossible outcomes to certain outcomes.
- B) Total outcomes to favourable outcomes.
- C) **Favourable outcomes to the total number of possible outcomes.**
- D) Past events to future events.

14. If an event is "certain" or sure to happen, its probability is expressed as:

- A) 0
- B) 0.5
- C) **1**
- D) 100

15. If an event is "impossible" and has no chance of happening, its probability is expressed as:

- A) 1
- B) **0.5**

- C) 0
- D) -1

16. What is the probability of getting "heads" when you toss a standard coin once?

- A) 1
- B) 0
- C) 0.75
- D) **0.5 (or 1/2)**

17. With one throw of a standard six-sided die, what is the probability of getting an even number?

- A) 1/5
- B) 2/5
- C) 5/6
- D) **1/2**

18. Which term describes an event where the probability of it happening is higher than another event?

- A) Impossible
- B) Unlikely
- C) **Likely**
- D) Certain

19. True or False: Getting a seven in a single throw of a standard six-sided die is a possible event.

- A) True
- B) **False**

20. If an event has an "even chance" of happening, where does it sit on the probability scale?

- A) At 0
- B) At 1
- C) **At 0.5**
- D) At 0.75

21. In cricket, probability is used to estimate the _____, which represents how many runs a batsman score before getting out.

- A) Strike rate
- B) **Batting average**
- C) Run rate
- D) Economy rate

22. Which of the following is a mathematical equation according to the sources?

- A) $2x + 5$
- B) **$x + 2 = 4x$**
- C) $x^2 + 2x$
- D) $5 + 5x + 5x^2$

23. What is the value of x in the equation: $10x - 8 = 6x$?

- A) 8
- B) 4
- C) **2**
- D) 6

24. Find the missing number in the following numerical pattern: 2, 4, 6, 8, 10, 12, ?

- A) 13
- B) **14**
- C) 15
- D) 16

25. If a bag contains 7 blue stars and 3 red stars, what is the likelihood of picking a blue star without looking?

- A) Impossible
- B) Unlikely
- C) **Likely**
- D) Equal Probability