MATHEMATICS MOCK TEST

Class: VIII | Set: 20

Time: 2 Hours | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. Solve the inequation $x - 4 > -1$ where the replacement set is $\{1, 2, 3, 4, 5\}$.

2. Find the length of the longest chord of a circle whose radius is 6.5 cm.

3. What is the y-coordinate of any point that lies on the x-axis?

4. Find the lateral surface area of a cube whose edge measures 10 cm.

5. What is the probability of getting a number 7 when a standard six-sided die is rolled?

SECTION B   (2 Marks Each)

6. Solve the inequation $4x - 1 \geq 11$ and represent the solution on a number line for $x \in \mathbb{W}$ (Whole numbers).

7. Find the area of a circle whose radius is 14 cm. (Take $\pi = 22/7$)

8. In which quadrants do the points $A(2, -3)$ and $B(-2, -3)$ lie respectively?

9. Find the height of a cuboid whose volume is 240 cm^3 and base area is 80 cm^2.

10. A bag contains 5 white, 7 red, and 8 black balls. If one ball is drawn at random, find the probability that it is a white ball.

SECTION C   (3 Marks Each)

11. Solve the linear inequation $\frac{2x+1}{3} \leq 5$, where x is a natural number. List the solution set.

12. The circumference of a circle exceeds its diameter by 30 cm. Find the radius of the circle. (Take $\pi = 22/7$)

13. Draw the graph of the linear equation $y = 2x - 1$ by finding at least three solutions.

14. A road roller of diameter 84 cm and length 100 cm takes 500 complete revolutions to level a playground. Find the area of the playground in square metres.

SECTION D (4 Marks Each - Case Study)

Case Study 1: The Probability Experiment
A teacher places 15 cards in a box, numbered 1 to 15. A student is asked to pick one card at random.

  (i) What is the probability that the number on the card is an even number? (2 Marks)

 (ii) What is the probability that the number on the card is a multiple of 3? (2 Marks)

Case Study 2: Building a Water Storage System
A housing society is constructing a cylindrical water tank with a radius of 2.1 m and a height of 5 m.

  (i) Calculate the total volume of the tank in cubic metres. (2 Marks)

 (ii) Find the capacity of the tank in litres, given that $1 \text{ m}^3 = 1000$ litres. (2 Marks)

VIVA VOCE (5 Marks)

- **Inequations:** If $x < y$, is it true that $-x < -y$? Explain.

- **Circles:** What is the name of the region bounded by a chord and an arc?

- **Coordinate Geometry:** What are the coordinates of a point 4 units to the left of the origin on the x-axis?

- **Probability:** What is the probability of a 'Sure Event'?

- **Solids:** How many rectangular faces does a cuboid have?