
MATHEMATICS MOCK TEST

Class: VIII | Set: 23

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

NAME: _____

ROLL NO: _____

SECTION A

(1 Mark Each)

1. A card is drawn from a well-shuffled pack of 52 cards. What is the probability that the card drawn is a jack?
2. Find the class mark of the class interval 125 – 175.
3. Fill in the blank: A part of a circle bounded by an arc and the two radii at its ends is called a _____.
4. The area of a square field is 32 m^2 . Find the length of its diagonal.
5. If the length, breadth and height of a cuboid are 2 m, 2 m and 1 m respectively, find its surface area.

SECTION B

(2 Marks Each)

6. Construct a parallelogram $ABCD$ in which $AB = 4.8 \text{ cm}$, $BC = 3.5 \text{ cm}$ and diagonal $AC = 5.4 \text{ cm}$ using a ruler and compasses.
7. 19 cards numbered 1, 2, 3, ..., 19 are put in a box. What is the probability that the number on the chosen card is a multiple of 4?
8. The sides of a rectangular park are in the ratio 3 : 2. If its area is 1536 m^2 , find the cost of fencing it at ₹23.50 per metre.
9. Draw a circle with centre C and radius 4.2 cm. Mark points P, Q, R such that P lies in the interior of the circle, Q lies on the circle and R lies in the exterior of the circle.
10. Find the capacity of a cylindrical tank (in cubic metres) if its radius is 14 m and its depth is 10 m.

SECTION C

(3 Marks Each)

11. Construct a quadrilateral $PQRS$ in which $PQ = 3 \text{ cm}$, $QR = 2.4 \text{ cm}$, $PS = 3.7 \text{ cm}$, diagonal $PR = 4 \text{ cm}$ and diagonal $QS = 5.5 \text{ cm}$.
12. Find the area of pentagon $PQRST$ in which $QD \perp PR$, $RE \perp PS$ and $TF \perp PS$ such that $PR = 10 \text{ cm}$, $PS = 12 \text{ cm}$, $QD = 3 \text{ cm}$, $RE = 7 \text{ cm}$ and $TF = 5 \text{ cm}$.

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13. Three cubes of metal with edges 5 cm, 4 cm and 3 cm respectively are melted to form a single cube. Find the lateral surface area of the new cube.
14. Construct a frequency table for the daily income (in rupees) of 30 workers using groups $65 - 75, 75 - 85, \dots, 115 - 125$:
83, 96, 91, 80, 97, 111, 90, 83, 112, 120, 103, 77, 82, 90, 70, 68, 89, 85, 78, 105, 94, 97, 90, 89, 102, 113, 90, 106, 70

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The Soap Brand Survey

A survey was conducted to find the percentage of buyers of different bathing soap brands: Brand A (20%), Brand B (35%), Brand C (25%), Brand D (15%), and Brand E (5%).

- Calculate the central angle for Brand B and Brand C to represent this data on a pie-chart. (2 Marks)
- If a person is chosen at random from the buyers, what is the probability that they buy either Brand D or Brand E? (2 Marks)

Case Study 2: Shaded Region Geometry

In a technical drawing, a designer has created a figure where OAB is an equilateral triangle of side 28 cm, and one end of the figure is a semi-circle with AB as the diameter.

- Find the area of the semi-circle portion of the figure. (Take $\pi = 22/7$). (2 Marks)
- Find the total perimeter of the figure (excluding the line segment AB which is inside the figure). (2 Marks)

VIVA VOCE

(5 Marks)

- Statistics:** What is the difference between "Exclusive" and "Inclusive" class intervals?
- Circles:** Can a circle have more than one center? State True or False.
- Probability:** What is the probability of a sure event?
- Mensuration:** How many cubic centimetres (cm^3) make one Litre?
- Area:** What is the formula for the area of a rhombus when diagonals are given?