
MATHEMATICS MOCK TEST

Class: VIII | Set: 07

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

NAME: _____

ROLL NO: _____

SECTION A

(1 Mark Each)

1. If x and y vary directly and $x = 3$ when $y = 15$, find the value of y when $x = 2$.
2. Evaluate: $(-2)^3 + 5$.
3. If $A = \{1, 2, 3, 4, 5\}$ and $B = \{2, 4, 6\}$, find $n(A \cap B)$.
4. Solve for x : $2x + 9 = 1$.
5. In a parallelogram, find the sum of any two adjacent angles.

SECTION B

(2 Marks Each)

6. Find the square root of 1764 using the prime factorization method.
7. Solve the inequation $3x - 2 \leq 4$ and represent the solution set if $x \in \mathbb{N}$ (Natural Numbers).
8. A train covers 120 km in 2 hours. How much distance will it cover in 5 hours at the same speed?
9. Find the area of a rhombus whose diagonals are 18 cm and 20 cm.
10. Calculate the simple interest on ₹1500 for 3 years at 5% per annum.

SECTION C

(3 Marks Each)

11. Tap A can fill a tank in 8 hours and Tap B can empty the same tank in 12 hours. If both are opened together, how long will it take to fill the tank?
12. Find the cube root of 4096 using the prime factorization method.
13. If $U = \{x : x \leq 10, x \in \mathbb{W}\}$, $A = \{x : x \text{ is a multiple of } 2\}$ and $B = \{x : x \text{ is a multiple of } 3\}$, find $(A \cup B)'$.
14. Find the compound interest on ₹15,625 for 1.5 years at 8% per annum compounded half-yearly.

SECTION D

(4 Marks Each - Case Study)

Case Study 1: The School Bus Management

A school has enough fuel to run its fleet of 15 buses for 20 days.

- (i) If 5 more buses are added to the fleet, for how many days will the fuel last? (2 Marks)
- (ii) If the school wants the fuel to last for 25 days, how many buses should be kept off the road? (2 Marks)

Case Study 2: Geometric Angles of a Polygon

A student is working with a quadrilateral $PQRS$. The angles are in the ratio $2 : 3 : 4 : 6$.

- (i) Form a linear equation and find the value of each angle. (2 Marks)
- (ii) If a triangle is formed by joining P and R , and the diagonal PR bisects $\angle P$, what specific name is given to the quadrilateral if $PQ = PS$ and $QR = SR$? (2 Marks)

VIVA VOCE

(5 Marks)

- **Variation:** Explain with an example why the number of workers and days required for a job is an inverse variation.
- **Sets:** What is a "Complement of a Set" and how is it calculated from a Universal set?
- **Quadrilaterals:** Define a "Kite" and state one of its diagonal properties.
- **Roots:** How many digits will be in the square root of a 5-digit perfect square?
- **Linear Equations:** What is the difference between an identity and a linear equation?