MATHEMATICS MOCK TEST
Class: VIII | Set: 1

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

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. Test the divisibility of 258 by 3 using the divisibility rule.

2. Rewrite using set notation: "p is an element of set A".

3. If the cost of 40 toys is ₹1024, find the cost of one toy.

4. Solve the linear equation: $4x - 9 = 2x + 7$.

5. If A can do a piece of work in 15 days, what is A's 1-day work?

SECTION B   (2 Marks Each)

6. In a two-digit number, the units digit is four times the tens digit and the sum of the digits is 10. Find the number.

7. Find all possible subsets of the set $A = \{4, 9\}$.

8. If a labourer earns ₹784 per week, how much will he earn in 15 days?

9. A can do a piece of work in 15 days while B can do it in 10 days. How long will they take together to do it?

10. 17 less than four times a number is 11. Find the number.

SECTION C   (3 Marks Each)

11. Find the values of A, B, C and D in the following addition:

	5	C	B	8
+	D	9	7	A
	8	2	4	3

12. Let $\xi = \{13, 14, 15, 16, 17, 18, 19, 20, 21\}$, $A = \{13, 17, 19\}$ and $B = \{14, 16, 18, 20\}$. Find A' and B'.

13. 15 men can do a piece of work in 36 hours. How many men will be required to finish the work in 20 hours?

14. The denominator of a fraction is 4 more than its numerator. On subtracting 1 from each numerator and the denominator, the fraction becomes $1/2$. Find the original fraction.

SECTION D   (4 Marks Each - Case Study)

Case Study 1: The Remuneration Logic
Two workers, A and B, are hired to dig a trench. A can dig the trench in 6 days while B can dig it in 8 days. They dug the trench working together and received ₹1120 for the total job.

(i) What is the ratio of their 1-day work? (2 Marks)

(ii) Find the individual share of money received by A and B based on their work efficiency. (2 Marks)

Case Study 2: Speed and Distance Analysis
A motorist travels from town A to town B at an average speed of 54 km/h. On his return journey, his average speed was 60 km/h. The total time taken for the entire trip (to and fro) is $9\frac{1}{2}$ hours.

(i) Form a linear equation to represent the total time taken in terms of distance x. (2 Marks)

(ii) Calculate the total distance between the two towns. (2 Marks)

VIVA VOCE   (5 Marks)

- **Linear Equations:** What is the difference between an algebraic expression and an algebraic equation?

- **Sets:** Define an "Empty Set" and give its symbol.

- **Variation:** If the number of workers increases, does the time taken to finish the work follow direct or inverse variation?

- **Time & Work:** If A completes work in x days and B in y days, what is the formula for their combined 1-day work?

- **Numbers:** State the divisibility rule for 11.