MATH LOVE INSTITUTE

Annual Examination 2025-26

Class: VII | Subject: Mathematics | Paper 4

Time: 3 Hours | Maximum Marks: 80

Student Name:	_____
Roll Number:	_____
Date:	_____

General Instructions:

1. All questions are compulsory.
2. The question paper is divided into 5 sections: A, B, C, D, and E.
3. Section A: Multiple Choice Questions (1 mark each) - 15 marks
4. Section B: Fill in the Blanks / True-False (1 mark each) - 15 marks
5. Section C: Short Answer Questions (2 marks each) - 20 marks
6. Section D: Long Answer Questions (3 marks each) - 15 marks
7. Section E: Application Based Questions (5 marks each) - 15 marks
8. There is no negative marking.
9. Use of calculators is not allowed.
10. Show all necessary working clearly.

Covering Topics: Ch 8: Rational Numbers | Ch 3: Data Handling | Ch 7: Comparing Quantities | Ch 9: Perimeter and Area | Ch 11: Exponents and Powers | Ch 10: Algebraic Expressions | Ch 13: Visualising Solid Shapes

SECTION A - MULTIPLE CHOICE QUESTIONS (15 × 1 = 15 marks)

Q1. Which of the following is NOT a rational number? **[1 mark]**

(a) 3/5

(b) -7/8

(c) $\sqrt{5}$

(d) 0

Q2. The standard form of the rational number 12/-18 is: **[1 mark]**

(a) 2/3

(b) -2/3

(c) 3/2

(d) -3/2

Q3. The value of 2^5 is: **[1 mark]**

(a) 10

(b) 16

(c) 32

(d) 64

Q4. Which of the following is a binomial? **[1 mark]**

(a) 3x

(b) 2x + 5

(c) $x^2 + 2x + 1$

(d) 7

Q5. In the expression $5x^2 + 3x - 7$, the coefficient of x^2 is: **[1 mark]**

(a) 5

(b) 3

(c) -7

(d) 2

Q6. If the price of an article is ₹500 and it is sold at 20% discount, the selling price is: **[1 mark]**

(a) ₹100

(b) ₹400

(c) ₹450

(d) ₹600

Q7. The area of a rectangle with length 12 cm and breadth 8 cm is: **[1 mark]**

(a) 20 cm²

(b) 40 cm²

(c) 96 cm²

(d) 48 cm²

Q8. The perimeter of a square with side 7 cm is: **[1 mark]**

(a) 14 cm

(b) 21 cm

(c) 28 cm

(d) 49 cm

Q9. The value of $(-2)^3$ is: **[1 mark]**

(a) -6

(b) -8

(c) 6

(d) 8

Q10. Using the law of exponents, $a^m \times a^n$ equals: **[1 mark]**

(a) a^{m-n}

(b) a^{m+n}

(c) a^{mn}

(d) $a^{m/n}$

Q11. The range of the data: 15, 22, 18, 30, 12, 25 is: **[1 mark]**

(a) 15

(b) 18

(c) 20

(d) 22

Q12. Which 3D shape has a circular base and one vertex? **[1 mark]**

(a) Cylinder

(b) Cone

(c) Sphere

(d) Cube

Q13. Between which two rational numbers does -3/4 lie? **[1 mark]**

(a) 0 and 1

(b) -1 and 0

(c) -2 and -1

(d) 1 and 2

Q14. If 30% of a number is 60, the number is: **[1 mark]**

(a) 180

(b) 200

(c) 18

(d) 90

Q15. The area of a circle with radius 7 cm is: (Use π = 22/7) **[1 mark]**

(a) 44 cm²

(b) 154 cm²

(c) 88 cm²

(d) 308 cm²

SECTION B - FILL IN THE BLANKS / TRUE-FALSE (15 × 1 = 15 marks)

Q16. Every integer is a _____ number. **[1 mark]**

Q17. The reciprocal of 5/8 is _____. **[1 mark]**

Q18. 3^0 = _____ **[1 mark]**

Q19. The constant term in the expression $2x^2 + 5x - 9$ is _____. **[1 mark]**

Q20. An expression with three terms is called a _____. **[1 mark]**

Q21. The mean of 5, 10, 15, 20, 25 is _____. **[1 mark]**

Q22. The perimeter of a circle is called _____. **[1 mark]**

Q23. A cube has _____ edges. **[1 mark]**

Q24. True or False: 2/3 = 4/6 **[1 mark]**

Q25. True or False: The product of a negative and positive rational number is positive. **[1 mark]**

Q26. True or False: $5^2 \times 5^3 = 5^5$ **[1 mark]**

Q27. True or False: The median of 3, 5, 7, 9, 11 is 7. **[1 mark]**

Q28. True or False: Simple Interest = (Principal × Rate × Time)/100 **[1 mark]**

Q29. True or False: The area of a triangle = (1/2) × base × height **[1 mark]**

Q30. True or False: A cylinder has 2 flat faces and 1 curved surface. **[1 mark]**

SECTION C - SHORT ANSWER QUESTIONS (10 × 2 = 20 marks)

Q31. Add: 3/7 + 5/7 **[2 marks]**

Q32. Simplify: 4x + 7x - 5x **[2 marks]**

Q33. Express 64 as a power of 2. **[2 marks]**

Q34. Find the perimeter of a rectangle with length 15 cm and breadth 8 cm. **[2 marks]**

Q35. Convert 25% into a fraction in its simplest form. **[2 marks]**

Q36. Find the mean of: 12, 15, 18, 21, 24 **[2 marks]**

Q37. Find the value of: (-3/5) × (10/9) **[2 marks]**

Q38. Evaluate: $(2^3)^2$ **[2 marks]**

Q39. What is the coefficient of x in the expression: $7x^2 - 4x + 11$? **[2 marks]**

Q40. Find the area of a square with side 9 cm. **[2 marks]**

SECTION D - LONG ANSWER QUESTIONS (5 × 3 = 15 marks)

Q41. Find three rational numbers between 2/5 and 3/5. **[3 marks]**

Q42. Simplify using laws of exponents: $(3^2 \times 3^4) \div 3^3$ **[3 marks]**

Q43. Add the following algebraic expressions: **[3 marks]**

$3x^2 + 5x - 7$ and $2x^2 - 3x + 4$

Q44. The following data shows marks obtained by 10 students in a test: **[3 marks]**

45, 52, 60, 48, 55, 50, 62, 58, 47, 53

Find: (a) Range (b) Mean (c) Median

Q45. Find the area of a parallelogram whose base is 14 cm and corresponding height is 8 cm. **[3 marks]**

SECTION E - APPLICATION BASED QUESTIONS (3 × 5 = 15 marks)

Q46. A shopkeeper bought a television for ₹15,000. He sold it at a profit of 12%. **[5 marks]**

(a) Find the selling price of the television.

(b) If he gives a discount of 5% on the selling price, what will be the final price?

(c) What will be his actual profit percentage?

Q47. Draw a double bar graph to compare the marks obtained by two students (Student A and Student B) in five subjects: **[5 marks]**

Subject	**Student A**	**Student B**
English	75	80
Hindi	70	65
Maths	85	90
Science	80	75
Social Studies	78	82

Answer the following:

(a) In which subject did Student A score higher than Student B?

(b) What is the total marks of Student A?

(c) What is the difference between their total marks?

Q48. A rectangular garden has a length of 25 m and breadth of 15 m. A path of width 2 m is built around the garden on the outside. **[5 marks]**

(a) Find the area of the garden.

(b) Find the total area including the path.

(c) Find the area of the path only.

(d) If the cost of laying tiles on the path is ₹50 per m², find the total cost.

ANSWER KEY WITH SOLUTIONS

SECTION A - MCQ ANSWERS

Answer 1: (c) √5

Solution: √5 is an irrational number as it cannot be expressed in the form p/q where p and q are integers and q ≠ 0. All other options are rational numbers.

> *Marking: 1 mark for correct answer*

Answer 2: (b) -2/3

Solution:

```
12/-18 = 12 ÷ (-18)
Divide both numerator and denominator by their HCF (6):
= (12÷6) / (-18÷6)
= 2 / (-3)
= -2/3 (Standard form has positive denominator)
```

> *Marking: 1 mark for correct answer*

Answer 3: (c) 32

Solution:

```
2⁵ = 2 × 2 × 2 × 2 × 2
= 4 × 2 × 2 × 2
```

```
= 8 × 2 × 2
= 16 × 2
= 32
```

Marking: 1 mark for correct answer

Answer 4: (b) 2x + 5

Solution: A binomial is an algebraic expression containing exactly two terms.

• 3x is a monomial (1 term)

• 2x + 5 is a binomial (2 terms) ✓

• $x^2 + 2x + 1$ is a trinomial (3 terms)

• 7 is a monomial (1 term)

Marking: 1 mark for correct answer

Answer 5: (a) 5

Solution: In the expression $5x^2 + 3x - 7$:

• Coefficient of x^2 is 5

• Coefficient of x is 3

• Constant term is -7

Marking: 1 mark for correct answer

Answer 6: (b) ₹400

Solution:

```
Marked Price = ₹500
Discount = 20%
Discount Amount = 20% of 500 = (20/100) × 500 = ₹100
```

```
Selling Price = Marked Price - Discount
= 500 - 100 = ₹400
```

Marking: 1 mark for correct answer

Answer 7: (c) 96 cm²

Solution:

```
Area of rectangle = length × breadth
= 12 cm × 8 cm
= 96 cm²
```

Marking: 1 mark for correct answer

Answer 8: (c) 28 cm

Solution:

```
Perimeter of square = 4 × side
= 4 × 7 cm
= 28 cm
```

Marking: 1 mark for correct answer

Answer 9: (b) -8

Solution:

```
(-2)³ = (-2) × (-2) × (-2)
= 4 × (-2)
= -8
```

```
Note: Odd power of negative number gives negative
result
```

Marking: 1 mark for correct answer

Answer 10: (b) a^(m+n)

Solution: According to the law of exponents:

```
a^m × a^n = a^(m+n)

When bases are same, we add the exponents during
multiplication.
```

Marking: 1 mark for correct answer

Answer 11: (b) 18

Solution:

```
Data: 15, 22, 18, 30, 12, 25
Maximum value = 30
Minimum value = 12
Range = Maximum - Minimum
= 30 - 12 = 18
```

Marking: 1 mark for correct answer

Answer 12: (b) Cone

Solution: A cone has:

• 1 circular base

• 1 vertex (apex)
• 1 curved surface

Marking: 1 mark for correct answer

Answer 13: (b) -1 and 0

Solution:

```
-3/4 = -0.75

Since -0.75 is between -1 and 0, the answer is -1 and
0.
```

Marking: 1 mark for correct answer

Answer 14: (b) 200

Solution:

```
Let the number be x
30% of x = 60
(30/100) × x = 60
x = 60 × (100/30)
x = 6000/30
x = 200
```

Marking: 1 mark for correct answer

Answer 15: (b) 154 cm²

Solution:

```
Area of circle = πr²
= (22/7) × 7 × 7
= (22/7) × 49
= 22 × 7
= 154 cm²
```

Marking: 1 mark for correct answer

SECTION B - FILL IN THE BLANKS / TRUE-FALSE ANSWERS

Answer 16: rational

Explanation: Every integer can be expressed in the form p/q where q = 1. For example, 5 = 5/1, -3 = -3/1. Hence, every integer is a rational number.

Marking: 1 mark for correct answer

Answer 17: 8/5

Solution:

```
Reciprocal of a/b = b/a
Therefore, reciprocal of 5/8 = 8/5
```

Marking: 1 mark for correct answer

Answer 18: 1

Solution: According to the law of exponents, any non-zero number raised to the power 0 equals 1.

```
3⁰ = 1
```

Marking: 1 mark for correct answer

Answer 19: -9

Solution: In the expression $2x^2 + 5x - 9$:

• $2x^2$ → variable term

• $5x$ → variable term

• -9 → constant term (no variable)

Marking: 1 mark for correct answer

Answer 20: trinomial

Explanation:

• Monomial - 1 term

• Binomial - 2 terms

• Trinomial - 3 terms

• Polynomial - more than 3 terms

Marking: 1 mark for correct answer

Answer 21: 15

Solution:

```
Data: 5, 10, 15, 20, 25
Mean = Sum of all observations / Number of
observations
= (5 + 10 + 15 + 20 + 25) / 5
= 75 / 5
= 15
```

Marking: 1 mark for correct answer

Answer 22: circumference

Explanation: The perimeter (distance around) of a circle is called its circumference.

```
Circumference = 2πr or πd
```

> *Marking: 1 mark for correct answer*

Answer 23: 12

Solution: A cube has:

• 6 faces (all squares)

• 8 vertices (corners)

• 12 edges

> *Marking: 1 mark for correct answer*

Answer 24: True

Solution:

```
2/3 = ?
Multiply numerator and denominator by 2:
(2×2)/(3×2) = 4/6

Therefore, 2/3 = 4/6 ✓
```

> *Marking: 1 mark for correct answer*

Answer 25: False

Solution: The product of a negative and positive rational number is always negative, not positive.

```
Example: (-2/3) × (4/5) = -8/15 (negative)
Rule: (+) × (-) = (-)
      (-) × (+) = (-)
```

Marking: 1 mark for correct answer

Answer 26: True

Solution:

```
Using law of exponents: a^m × a^n = a^(m+n)
5² × 5³ = 5^(2+3) = 5⁵ ✓
```

Marking: 1 mark for correct answer

Answer 27: True

Solution:

```
Data: 3, 5, 7, 9, 11 (already in ascending order)
Number of observations = 5 (odd)
Median = Middle value = 3rd observation = 7 ✓
```

Marking: 1 mark for correct answer

Answer 28: True

Solution: The formula for Simple Interest is:

```
SI = (P × R × T) / 100

Where:
P = Principal
```

```
R = Rate of interest per annum
T = Time in years
```

Marking: 1 mark for correct answer

Answer 29: True

Solution: The formula for area of triangle is:

```
Area = (1/2) × base × height

This formula works for all types of triangles.
```

Marking: 1 mark for correct answer

Answer 30: True

Solution: A cylinder has:

• 2 flat circular faces (top and bottom)

• 1 curved surface (lateral surface)

• 2 circular edges

Marking: 1 mark for correct answer

SECTION C - SHORT ANSWER QUESTIONS (2 marks each)

Answer 31:

Solution:

```
3/7 + 5/7
(Since denominators are same, add numerators)
```

```
= (3 + 5)/7
= 8/7
```

Marking: 1 mark for method, 1 mark for correct answer

Answer 32:

Solution:

```
4x + 7x - 5x
(Combine like terms)
= (4 + 7 - 5)x
= 6x
```

Marking: 1 mark for combining like terms, 1 mark for correct answer

Answer 33:

Solution:

```
64 = 2 × 2 × 2 × 2 × 2 × 2
64 = 2⁶

Therefore, 64 = 2⁶
```

Marking: 1 mark for factorization, 1 mark for expressing as power

Answer 34:

Solution:

```
Given:
Length (l) = 15 cm
```

```
Breadth (b) = 8 cm

Perimeter of rectangle = 2(l + b)
= 2(15 + 8)
= 2 × 23
= 46 cm
```

Marking: 1 mark for formula, 1 mark for correct calculation

Answer 35:

Solution:

```
25% = 25/100

Simplify by dividing numerator and denominator by 25:
= (25÷25)/(100÷25)
= 1/4

Therefore, 25% = 1/4
```

Marking: 1 mark for converting to fraction, 1 mark for simplification

Answer 36:

Solution:

```
Data: 12, 15, 18, 21, 24

Mean = Sum of observations / Number of observations
= (12 + 15 + 18 + 21 + 24) / 5
= 90 / 5
= 18
```

Marking: 1 mark for sum, 1 mark for correct mean

Answer 37:

Solution:

```
(−3/5) × (10/9)
= (−3 × 10) / (5 × 9)
= −30 / 45

Simplify by dividing by 15:
= −2/3
```

Marking: 1 mark for multiplication, 1 mark for simplification

Answer 38:

Solution:

```
Using law of exponents: (a^m)^n = a^(mn)

(2³)² = 2^(3×2)
= 2⁶
= 64
```

Marking: 1 mark for using law of exponents, 1 mark for calculation

Answer 39:

Solution:

```
Expression: 7x² − 4x + 11
```

Breaking down the terms:

- $7x^2$ → coefficient of x^2 is 7
- $-4x$ → coefficient of x is -4
- 11 → constant term

Therefore, coefficient of x = -4

Marking: 1 mark for identification, 1 mark for correct answer

Answer 40:

Solution:

Given: Side of square = 9 cm

Area of square = $(\text{side})^2$

$= 9^2$

$= 81\ \text{cm}^2$

Marking: 1 mark for formula, 1 mark for calculation

SECTION D - LONG ANSWER QUESTIONS (3 marks each)

Answer 41:

Solution:

Given: Find three rational numbers between 2/5 and 3/5

Method: Multiply numerator and denominator by 4 (to get more fractions)

```
2/5 = (2×4)/(5×4) = 8/20
3/5 = (3×4)/(5×4) = 12/20

Numbers between 8/20 and 12/20 are: 9/20, 10/20,
11/20

Therefore, three rational numbers are:
9/20, 10/20 (or 1/2), 11/20
```

> *Marking: 1 mark for method, 1 mark for finding numbers, 1 mark for correct answer*

Answer 42:

Solution:

```
Simplify: (3² × 3⁴) ÷ 3³

Step 1: Apply law a^m × a^n = a^(m+n)
= 3^(2+4) ÷ 3³
= 3⁶ ÷ 3³

Step 2: Apply law a^m ÷ a^n = a^(m-n)
= 3^(6-3)
= 3³

Step 3: Calculate
= 3 × 3 × 3
= 27
```

> *Marking: 1 mark for applying multiplication law, 1 mark for division law, 1 mark for final answer*

Answer 43:

Solution:

```
Add: (3x² + 5x - 7) + (2x² - 3x + 4)

Step 1: Remove parentheses
= 3x² + 5x - 7 + 2x² - 3x + 4

Step 2: Group like terms
= 3x² + 2x² + 5x - 3x - 7 + 4

Step 3: Combine like terms
= 5x² + 2x - 3

Final Answer: 5x² + 2x - 3
```

Marking: 1 mark for grouping like terms, 1 mark for combining, 1 mark for correct answer

Answer 44:

Solution:

```
Data: 45, 52, 60, 48, 55, 50, 62, 58, 47, 53

(a) Range:
Arrange in order: 45, 47, 48, 50, 52, 53, 55, 58, 60,
62
Maximum = 62, Minimum = 45
Range = 62 - 45 = 17

(b) Mean:
Sum = 45 + 52 + 60 + 48 + 55 + 50 + 62 + 58 + 47 + 53
= 530
Number of observations = 10
```

```
Mean = 530 ÷ 10 = 53

(c) Median:
Ordered data: 45, 47, 48, 50, 52, 53, 55, 58, 60, 62
n = 10 (even)
Median = Average of 5th and 6th terms
= (52 + 53) ÷ 2 = 52.5

Answers: Range = 17, Mean = 53, Median = 52.5
```

Marking: 1 mark each for range, mean, and median

Answer 45:

Solution:

```
Given:
Base of parallelogram = 14 cm
Height = 8 cm

Area of parallelogram = base × height
= 14 × 8
= 112 cm²

Therefore, area of parallelogram = 112 cm²
```

Marking: 1 mark for formula, 1 mark for substitution, 1 mark for answer

SECTION E - APPLICATION BASED QUESTIONS (5 marks each)

Answer 46:

Solution:

Given:
Cost Price (CP) = ₹15,000
Profit = 12%

(a) Finding Selling Price:
Profit Amount = 12% of 15,000
= (12/100) × 15,000
= ₹1,800

Selling Price (SP) = CP + Profit
= 15,000 + 1,800
= ₹16,800

(b) Final Price after 5% discount:
Discount = 5% of 16,800
= (5/100) × 16,800
= ₹840

Final Price = SP - Discount
= 16,800 - 840
= ₹15,960

(c) Actual Profit Percentage:
Actual Profit = Final Price - CP
= 15,960 - 15,000
= ₹960

Actual Profit % = (Profit/CP) × 100
= (960/15,000) × 100
= 6.4%

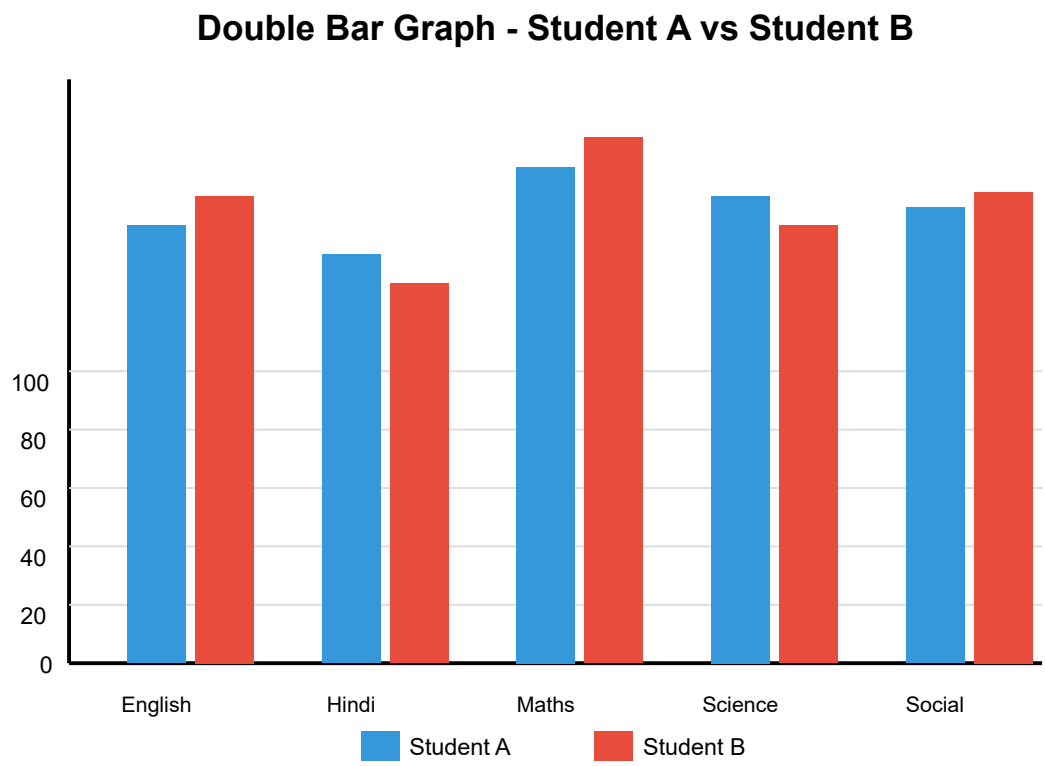
Answers:
(a) Selling Price = ₹16,800

```
(b) Final Price = ₹15,960
(c) Actual Profit % = 6.4%
```

Marking: 2 marks for part (a), 2 marks for part (b), 1 mark for part (c)

Answer 47:

Solution:




```
Questions and Answers:

(a) In which subject did Student A score higher than Student B?
Answer: Student A scored higher in Hindi (70 > 65) and Science (80 > 75)

(b) What is the total marks of Student A?
English: 75
Hindi: 70
```

```
Maths: 85
Science: 80
Social Studies: 78
Total = 75 + 70 + 85 + 80 + 78 = 388 marks

(c) What is the difference between their total marks?
Student A total = 388
Student B total = 80 + 65 + 90 + 75 + 82 = 392
Difference = 392 - 388 = 4 marks
Student B scored 4 marks more than Student A.
```

Marking: 2 marks for drawing graph, 1 mark for each answer (a), (b), (c)

Answer 48:

Solution:

```
Given:
Length of garden = 25 m
Breadth of garden = 15 m
Width of path = 2 m

(a) Area of garden:
Area = length × breadth
= 25 × 15
= 375 m²

(b) Total area including path:
The path is 2 m wide on all sides
New length = 25 + 2 + 2 = 29 m
New breadth = 15 + 2 + 2 = 19 m

Total area = 29 × 19
= 551 m²
```

(c) Area of path only:

Area of path = Total area - Garden area

= 551 - 375

= 176 m²

(d) Cost of laying tiles on path:

Rate = ₹50 per m²

Total cost = Area of path × Rate

= 176 × 50

= ₹8,800

Answers:

(a) Area of garden = 375 m²

(b) Total area including path = 551 m²

(c) Area of path = 176 m²

(d) Total cost = ₹8,800

Marking: 1 mark for part (a), 1.5 marks for part (b), 1.5 marks for part (c), 1 mark for part (d)

END OF QUESTION PAPER

Total Marks: 80

Best wishes for your examination!