



Indian School Al Wadi Al Kabir
Mid Term Examination (2026-27)

Class: VIII

MATHEMATICS

Max. Marks: 80

Date: 20-09-2026

SET - 1

Time: 2 ½ Hours.

General Instructions:

Section A: Multiple Choice Questions (Q.1 to Q.15)

& Source based Question (Q.16)

Section B: Short Answer Questions of 2 marks each (Q.17 to Q.21)

Section C: Long Answer Questions of 3 marks each (Q.22 to Q.27)

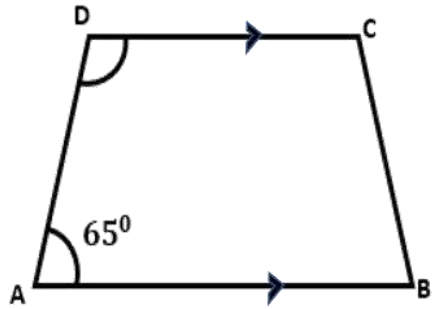
Section D: Long Answer Questions of 4 marks each (Q.28 to Q.33)

& Case study Questions (Q.34 & Q.35) of 4 marks each.

NOTE: This question paper consists of 5 printed pages.

SECTION A Multiple Choice Questions

1. The product of $(2x + 3)(x + 4)$ is: 1M
A $2x^2 + 8x + 12$ **B** $2x^2 + 11x + 12$ **C** $2x^2 + 11x + 7$ **D** $2x^2 + 5x + 12$
2. For a class art activity, the teacher provided 45 red pencils and 60 blue pencils. Write the ratio of red pencils to blue pencils in its simplest form. 1M
A 2:3 **B** 4:5 **C** 3 : 4 **D** 5:6
3. $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 = \underline{\hspace{2cm}}$. 1M
A 100 **B** 81 **C** 8 **D** 64
4. Which of the following number is divisible by both 3 and 9 1M
A 4212 **B** 1245 **C** 2356 **D** 5174
5. Find the value of 'x' in the given proportion, $7:9 = 21:x$ 1M
A 24 **B** 30 **C** 27 **D** 28
6. Using identity, find the product of $(9a + 7b)(9a - 7b)$: 1M
A $81a^2 + 7b^2$ **B** $81a^2 - 49b^2$ **C** $18a^2 - 14b^2$ **D** $9a^2 - 2b^2$
7. In parallelogram PQRS, If $\angle Q = 70^\circ$, then the measure of $\angle S$ is: 1M
A 70° **B** 90° **C** 110° **D** 120°

8. If 4 notebooks cost ₹80, how much will 7 notebooks cost? 1M
- A** ₹140 **B** ₹120 **C** ₹160 **D** ₹180
9. Express 51,860,000,000 in standard form using powers of 10. 1M
- A** 5.186×10^8 **B** 5.186×10^9 **C** 5.186×10^{10} **D** 51.86×10^9
10. For an art project, Jiya wants to make a square-shaped piece of coloured paper. The side length of the square is 14 cm. What is the area of the square? 1M
- A** 196cm^2 **B** 28cm^2 **C** 56cm^2 **D** 224cm^2
11. In trapezium ABCD, $AB \parallel DC$. If $\angle A = 65^\circ$, find $\angle D$. 1M
- 
- A** 95° **B** 115° **C** 65° **D** 125°
12. The digital root of the number 849710 is: 1M
- A** 0 **B** 1 **C** 2 **D** 9
13. The multiplicative inverse(reciprocal) of $(23)^{-5}$ is: 1M
- A** $(23)^5$ **B** $\left(\frac{1}{23}\right)^5$ **C** $(-23)^5$ **D** $\left(\frac{5}{23}\right)^{-1}$
14. $\sqrt[3]{216 \times 125} =$ 1M
- A** 20 **B** 25 **C** 35 **D** 30
15. The angles of a quadrilateral are 120° , 65° , 95° and x° . The measure of x is: 1M
- A** 70° **B** 80° **C** 85° **D** 75°

16. **Source based question (5 Marks):**

During a science exhibition, students prepared a model showing the growth of bacteria. The teacher explained that bacteria can multiply rapidly. In one experiment, the number of bacteria doubles every hour. At the beginning, there was 2^3 bacteria. The students used exponents to represent the increasing number of bacteria.



- I How many bacteria were present at the beginning? 1M
A 6 B 8 C 9 D 16
- II After 2 hours, the number of bacteria can be represented as: 1M
A $2^3 + 2^2$ B $2^3 \times 2^2$ C $2^3 - 2^2$ D $2^3 \div 2^2$
- III Use the laws of exponents to simplify: $2^3 \times 2^2$ 1M
A 2^5 B 4^5 C 2^6 D 2^1
- IV The value of 2^5 is: 1M
A 16 B 24 C 32 D 64
- V If the number of bacteria is written as 3.2×10^6 , its usual form is: 1M
A 32000000 B 3200000 C 3.200000 D 32.0006

SECTION B: Short Answer Questions

17. A library has $(x - 3)$ shelves, and each shelf contains $(x + 2)$ books. Find the total number of books in the library. 2M
18. A shopkeeper sells 300 g of dry fruits for ₹240. Another shop sells 1 kg of the same dry fruits for ₹720. Are the weight-to-price ratios in proportion? Which shop is more expensive? 2M
19. Use repeated subtraction of consecutive odd numbers to determine whether 49 is a perfect square. If it is, find its square root. 2M
20. A school collected 2,436 notebooks for a charity drive. The teacher wants to arrange the notebooks into 6 equal groups without any notebook left over. Using the divisibility rule for 6, determine whether 2,436 is divisible by 6. Give a reason for your answer. 2M
21. Simplify and find value of $(5^4)^2 \div 5^6$ using laws of exponents. 2M

SECTION C: Long Answer Questions

22. Expand and simplify the expression: $2(x - 1) + 3(x + 4) - 5x$. 3M
23. Three groups of students planted 720 saplings for a school garden. The numbers of saplings planted by the groups were in the ratio 2 : 3 : 5. How many saplings did each group plant? 3M
24. A school is preparing cube-shaped gift boxes for a mathematics exhibition. Each box has a volume of 1728 cm^3 . The students need to find the length of each side of the cube. Using prime factorisation, find the cube root of 1728 and hence determine the side length of the gift box. 3M
25. Using divisibility tests, check whether the following numbers are divisible by the given numbers. Show your working for both questions. 3M
- a) 256348 by 4
- b) 2543617 by 11
26. Construct parallelogram $EFGH$, given that $EF=7.5\text{cm}$, $FG = 5\text{cm}$ and $\angle EFG=120^\circ$. 3M
27. Simplify the following: 3M
- (a) $\{(7)^{-2} \times (7)^5\} \div 7$
- (b) $\left[\frac{((5^0+13^0)\times 4)}{2^2}\right]^2 + 2^3$

SECTION D: Long Answer Questions

28. Use suitable identities to find the value of the following: 4M
- a) $(103)^2$
- b) 78×82
29. In a printing press a machine can print 200 pages in 30 minutes: If the number of pages and time vary directly, find the values of x, y, z & w . 4M
- | | | | | | |
|-----------------|-----|-----|-----|-----|-----|
| Number of pages | 200 | x | 300 | z | w |
| Time (minutes) | 30 | 75 | y | 120 | 90 |
30. A tile manufacturer has produced 2,560 tiles for a special display. The manufacturer wants to arrange all the tiles in a perfect square formation. What is the smallest number by which 2,560 must be multiplied to make the resulting number a perfect square? 4M

31. Maya wrote four consecutive numbers on the board for a mathematics puzzle. Sum of these four numbers is 82. What are the four consecutive numbers? 4M
32. Using ruler and compasses, construct a rhombus $KLMN$ whose diagonals measure 7 cm and 8 cm. 4M
33. Express 648×405 as a product of powers of prime factors in exponential form. 4M

34. CASE STUDY -1:

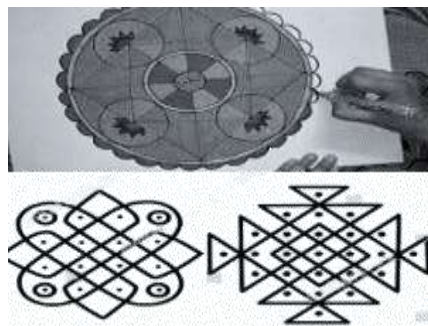
A neighbourhood committee is working together to create a small community garden. They are making square nursery beds for growing plants, installing square solar panels to provide electricity, and preparing cube-shaped boxes for storing water and compost.



- a) One of the nursery beds is square-shaped, with each side measuring 12 m. What is the area of the nursery bed?
- b) A square solar panel has an area of 324 cm^2 . Find the length of one side of the panel?
- c) A cube-shaped compost box can hold 3375 cm^3 of compost. What is the length of each edge of the box?
- d) The committee records the area of a large square garden bed as $8,100 \text{ m}^2$. Without finding the exact square root, determine the number of digits in its square root.

35. CASE STUDY-2:

During a cultural celebration, an artist designs a large rangoli pattern using different geometric shapes. The central design contains a square, rectangle, rhombus and parallelogram. The artist uses the properties of these quadrilaterals to maintain symmetry and balance in the pattern.



- a) The artist creates a diamond-shaped design in the centre of a rangoli. The design is a rhombus $ABCD$. If $\angle A = 70^\circ$, find the measure of $\angle C$.
- b) The two diagonals of a parallelogram-shaped design in the rangoli intersect at their midpoints. If one part of a diagonal is 7 cm, what is the length of the other part of the same diagonal?
- c) A square in the rangoli has one side represented by $(3x + 4) \text{ cm}$, while an adjacent side is represented by $(5x - 10) \text{ cm}$. Find the value of x .
- d) The artist creates a kite-shaped design in the rangoli. If one pair of adjacent sides measure 6 cm each and the other pair measures 4 cm each, find the perimeter of the kite.
