

Bhavan's Tripura Vidyamandir
1st Terminal Examination : (2025-2026)

Class : 8

Time : 3 Hours

Roll :

Name of the student :

Subject : Mathematics

Total : 80 Marks

Sec :

General Instructions:

- **Section A** contains 15 MCQs (1 to 15) each carrying 1 mark.
- **Section B** contains 10 questions (16 to 25) each carrying 2 marks.
- **Section C** contains 8 questions (26 to 33) each carrying 3 marks.
- **Section D** contains 4 questions (34 to 37) each carrying 4 marks.
- **Section E** contains 1 Case-study (38) carrying 5 marks.

SECTION A

1. The sum of $1 + 3 + 5 + 7 + 9$ is
a) 25 b) 49 c) 36 d) 16
2. The squares of which of the following would not be odd numbers?
a) 431 b) 2826 c) 7779 d) 121
3. The rational number _____ is the additive identity for rational numbers.
a) 0 b) 1 c) 2 d) -1
4. In the equation: $2x - 3 = x + 2$ What is the value of x?
a) 1 b) 3 c) 5 d) -1
5. 12: 16 in the simplest form
a) 3: 4 b) 2: 4 c) 2:6 d) 3:6
6. If x and y are in direct proportion, then which of the following statement is true?
a) $x + y = k$ b) $x - y = k$ c) $xy = k$ d) $\frac{x}{y} = k$
7. $(a + b)(a - b) =$
a) $(a + b)^2$ b) $(a - b)^2$ c) $a^2 - b^2$ d) $(a + b)^3$
8. One of the factors of the algebraic expression $8a - 44$ is
a) $5 - 2a$ b) $2a - 11$ c) $8a + 21$ d) $2a + 5$
9. $\left(\frac{5}{9}\right)^2 =$
a) $\frac{25}{81}$ b) $\frac{9}{27}$ c) $\frac{25}{16}$ d) $\frac{16}{36}$
10. Which of the following number is perfect cube?
a) 125 b) 181 c) 150 d) 200
11. The cube of a one - digit number will contain _____ digits.
a) 1 b) 2 c) 3 d) 1, 2 or 3
12. The smallest number by which 12 need to multiply to obtain the perfect cube is
a) 25 b) 21 c) 18 d) 35
13. Which of the following expression is a monomial?
a) $7 + x$ b) $7y - y$ c) $xy - z + 1$ d) $100y - xy - 1$
14. $20x^4 \div 10x^2$ is equal to
a) $2x$ b) $2x^2$ c) $\frac{1}{2x}$ d) $\frac{x}{2}$
15. When we factorise an expression, we write it as a _____ of factors.
a) Product b) difference c) sum d) subtraction

SECTION-B

16. Simplify and solve the linear equation: $3(t - 3) = 5(2t + 1)$
17. A What number should be added to $\frac{-5}{11}$ to get $\frac{-13}{33}$
18. Find the square root of 1.69
19. If 15 workers can build a wall in 48 hours, how many workers will be required to do the same work in 30 hours?
20. Find the product of the common factors (or HCF) of the following:
i) $3x, 4x^2, 5x^3$ and (ii) $15a^4, 30a^3, (-5a^2)$
21. Using a suitable identity, find the product $(5x + 8y)(5x + 8y)$.
22. Divide: $66pq^2r^3 \div 11qr^2$
23. Find the square roots of 100 by the method of repeated subtraction.
24. Find the ones digit of the cube of 1999.
25. Write down the cube roots of following in the factor form: $2^6 \times 3^{12} \times 5^9$

SECTION-C

26. Subtract: $3a(a + b + c) - 2b(a - b + c)$ from $4c(-a + b + c)$
27. Find the smallest whole number by which 252 should be multiplied to get a perfect square number. Also find the square root of the square number so obtained.
28. Simplify $3x(4x - 5) + 3$ and find its values for (i) $x = 3$ and (ii) $x = 1$
29. Find the cube root of 27000 by prime factorisation method.
30. A farmer has enough food to feed 20 animals in his cattle for 6 days. How long would the food last if there were 10 more animals in his cattle?
31. Divide $9a^2 + 24ab + 16b^2$ by $3a + 4b$.
32. Solve, $5(y - 2) - (3y - 5) = 18$
33. Factorise: $p^2 + 6p + 8$

SECTION-D

34. Factorise the expression: (i) $p^2 + 6p + 8$ (3 + 1)
(ii) $(a + b)^2 =$
35. (i) Find the cube root of 46656
(ii) A perfect cube does not end with two zeros. (True/False) (3 + 1)
36. Find the square root of 134 correct up to two decimal places.
37. A 5 m 60 cm high vertical pole casts a shadow 3 m 20 cm long. Find at the same time
(i) the length of the shadow cast by another pole 10 m 50 cm high.
(ii) the height of a pole which casts a shadow 5m long.

SECTION-E (Case-study)

38. Mr. Sharma wants to plant 144 saplings in his garden in such a way that the number of rows and number of columns are equal. The arrangement of the saplings will be in One of the products perfect squares and will be easy to water them frequently. Based on the above information answer the following questions
- (i) Do you think it is possible to make number of rows and column equal by 144 saplings?
- (ii) Find the number of rows of saplings.
- (iii) What would be the unit digit of the column?
- (iv) If you want to make the arrangement with 13 rows and 13 columns, how many saplings are needed?
- (v) Find the square root of 81.