

BHARTIYA SHIKSHA BOARD

Model Paper – Half Yearly

Mathematics - Class 8

Session 2026-27

Time: 3 Hours

Max Marks: 80

GENERAL INSTRUCTIONS:

- Read the questions carefully.
- Please check that this question paper contains **05** printed pages.
- **10 minutes** extra time is allowed to read this question paper. During this time, students will only read the question paper and not write the answer.
- Attempting all questions is compulsory.
- This question paper contains **38 questions** divided into four sections: **A, B, C and D.**

Section A: Question numbers **1 to 20**, each question carries **1** mark.

Section B: Question numbers **21 to 27**, each question carries **2** marks.

Section C: Question numbers **28 to 36**, each question carries **4** marks.

Section D: Question numbers **37 to 38**, each question carries **5** marks.

- There is no overall choice in this question paper. However, an internal choice has been given in 2 questions of 2 marks each and 2 questions of 4 marks each. You have to attempt only one of the choices in such questions.

SECTION A

1. The Sanskrit word *varga* represents
(a) square root (b) square (c) cube (d) cube root
2. Which of the following numbers is known as the Hardy–Ramanujan number?
(a) 1728 (b) 1730 (c) 1829 (d) 1729
3. The concept of tax has been mentioned in which of the following oldest texts?
(a) Ramayana (b) Lilavati (c) Manusmriti (d) Geeta
4. Check $x = -2$ is the solution of which of the following equations?
(a) $2x + 1 = 0$ (b) $3x - 6 = 0$ (c) $3x + 6 = 0$ (d) $x - 2 = 0$
5. Which of the following numbers is not a perfect square?
(a) 225 (b) 625 (c) 1100 (d) 441
6. The value of $\sqrt{0.25} + \sqrt{0.04}$ is:
(a) 0.7 (b) 7 (c) 0.07 (d) 5.2

7. The square root of $5\frac{19}{25}$ is:

- (a) 5.5 (b) $\frac{4}{5}$ (c) 4.4 (d) 2.4

8. The value of $\sqrt[3]{3 \times 3 \times 3 \times 0.1 \times 0.1 \times 0.1}$ is:

- (a) 3 (b) 0.3 (c) 0.1 (d) 0.03

9. Which of the following numbers is not a perfect cube?

- (a) 63 (b) 27 (c) -27 (d) 1000

10. The largest collection of numbers is:

- (a) whole number (b) integers
(c) irrational numbers (d) real numbers

11. The sum of the rational number $-\frac{4}{5}$ and its additive inverse is:

- (a) 0 (b) 1 (c) $\frac{4}{5}$ (d) $\frac{5}{4}$

12. If $5^x = \frac{1}{125}$, then $x =$

- (a) 3 (b) -3 (c) 5 (d) -5

13. Which of the following numbers is larger?

- (a) 10^{-1} (b) 10^{-2} (c) 10^{-3} (d) 10^{-4}

14. $(5^0 \div 4^{-1}) \times 3^0 =$

- (a) 5 (b) $\frac{5}{4}$ (c) -4 (d) 4

15. Identify the linear equation in one variable.

- (a) $2p + q = 0$ (b) $\frac{1}{x} + x = 1$ (c) $x^{-2} = 1$ (d) $2y + 1 = 5$

16. $a(a-b) + b(a+b) =$

- (a) $a^2 - b^2$ (b) $a^2 + b^2$ (c) $a - b$ (d) $a + b^2$

17. The value of $\frac{74^2 - 35^2}{109}$ is:

- (a) 49 (b) 29 (c) 59 (d) 39

18. The sale price of a shirt with MRP ₹1200 after 20% discount is

- (a) ₹960 (b) ₹1080 (c) ₹1000 (d) ₹900

19. Statement (S): $(2x - y)(2x + y) = 4x^2 + y^2$.

Reason (R): $(a - b)(a + b) = a^2 - b^2$.

- (a) Both (S) and (R) are true (b) Both (S) and (R) are false
(c) (S) is true but (R) is false (d) (S) is false but (R) is true

20. Statement (S): $1 + x + x^2 + x^3 = (1 + x)(x + x^2)$.

Reason (R): $a^2 + 2ab + b^2 = (a + b)(a + b)$.

- (a) Both (S) and (R) are true (b) Both (S) and (R) are false
(c) (S) is true but (R) is false (d) (S) is false but (R) is true

SECTION B

21. Find the smallest number by which the number 882 should be divided so that it will become a perfect square.

22. Evaluate $\sqrt[3]{\frac{0.027}{0.008}} \div \sqrt{\frac{0.09}{0.04}}$.

OR

Find the value of $\sqrt[3]{8} \div \sqrt[3]{0.027}$.

23. Write two irrational numbers between 0 and 1.

24. Which one is greater $(5^{-2})^2$ or $2(5^{-2})$?

25. Find the product $\frac{1}{2}xy(x^2 - y^2)$, and then find its value when $x = 2$ and $y = -2$.

OR

Expand $(2a - 3b + 1)^2$.

26. Factorise $1 - 18y + 81y^2$, using a suitable identity.

27. The cost price of fancy dress is ₹ 3,100. The GST on the dress is 12%. Find the selling price of the dress.

SECTION C

28. Express the decimal number $0.\overline{37}$ in the form of $\frac{p}{q}$ ($q \neq 0$).

29. Simplify $\frac{2^2 \times 9^{-2} \times 12^2}{6^{-2} \times 18}$ and write the answer in positive exponent form.

30. Match the items in column I with the correct items in column II.

Column I	Column II
a. 7.23	i. 7.23×10^{-5}
b. 0.0000723	ii. 7.23×10^5
c. 723000	iii. $7 \times 10^0 + 0 \times 10^{-1} + 3 \times 10^{-2} + 3 \times 10^{-3}$
d. 7.023	iv. $7 \times 10^0 + 2 \times 10^{-1} + 3 \times 10^{-2}$

31. The area of a square garden is 1046529 m^2 . Find the length of its side using long division

method.

OR

Find the square root of 9.81 correct up to two decimal places.

32. Solve $\frac{x-8}{3} + 2 = \frac{2-x}{5}$ and check your solution.

33. Simplify $(a^2 + b^2 + c^2)(b + c) - a(ab + ca) - b(bc + c^2)$.

34. Evaluate $(x+2)^2 + (x+2)(x-2) + (x-2)^2$.

35. If $x^2 + \frac{1}{x^2} = 66$, find the value of $x - \frac{1}{x}$, using suitable identity.

OR

Factorise $16x^4 - 81$.

36. Using factorisation, divide $x^2 + 10x + 25$ by $x^2 + 8x + 15$.

SECTION D

37. Dhani and Sumi are friends. They visited an orphanage to distribute toys on Diwali. The number of toys Dhani and Sumi distributed were in the ratio 5 : 6.



Dhani distributed her toys by giving four to each child and is left with 15 toys. Sumi distributed five toys to each child of the same group and has 10 toys left with her.

- a. Write the above situation in the form of a linear equation. (2)
- b. Solve the equation and find the number of children in the orphanage. (3)

38. Shivam is planning to buy a car costing ₹8,50,000. He made the down payment of ₹3,50,000 and for the rest of the amount he took loan from the bank. The bank charges 10% interest p.a. compounded half-yearly for a period of 18 months.



Based on this information, answer the following questions.

- a. Find the amount of loan. (1)
- b. Find the amount that Shivam will pay to the bank after 18 months. (3)
- c. Find the amount of interest paid by Shivam. (1)