BHARTIYA SHIKSHA BOARD
Model Paper – Half Yearly
Mathematics - Class 7
Session 2026-27

Time: 3 Hours **Max Marks: 80**

GENERAL INSTRUCTIONS:

- Read the questions carefully.
- Please check that this question paper contains **06** 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. In Arab countries the word Shunya was used as

   (a) zero (b) cypher (c) sifr (d) absence

2. Name the Bhartiya mathematician who wrote the first work with full and systematic use of the decimal number system.

   (a) Bhaskara II (b) Bhaskara I (c) Brahmagupta (d) Pingla

3. The book *Lilavati* was written by

   (a) Aryabhata (b) Varahmihir (c) Mahavira (d) Bhaskara II

4. In the *Vedic* age the circle has been divided into 360^{o}. This division is elaborated in _____.

   (a) Chandra Siddhanta (b) Surya Siddhanta

   (c) Vishnu Siddhanta (d) Chakra Siddhanta

5. The additive inverse of the number –5 is:

   (a) 1 (b) –5 (c) 5 (d) 0

6. The value of $(-15) \times (-3)$ is

(a) 45 (b) –45 (c) –5 (d) 5

7. The product of two integers is always an

(a) natural number (b) whole number (c) integer (d) zero

8. $\frac{2}{7} \times \frac{5}{8} =$

(a) $\frac{5}{28}$ (b) $\frac{5}{56}$ (c) $\frac{10}{15}$ (d) $\frac{7}{56}$

9. The product of 0.5 and 0.6 is

(a) 3.00 (b) 0.030 (c) 0.03 (d) 0.3

10. The standard form of the rational number $\frac{-56}{70}$ is:

(a) $\frac{-16}{20}$ (b) $\frac{-12}{15}$ (c) $\frac{4}{5}$ (d) $\frac{-4}{5}$

11. Which of the following rational numbers is greater?

(a) $\frac{-6}{22}$ (b) $\frac{-10}{22}$ (c) $\frac{-14}{11}$ (d) $\frac{-5}{11}$

12. Which of the following equation represents 'six more than twice of a number is 10'?

(a) $2x - 6 = 10$ (b) $2p + 6 = 10$ (c) $6y + 2 = 10$ (d) $2p + 10 = 6$

13. If one angle of a linear pair of angles is 75°, then the other angle is:

(a) 15° (b) 105° (c) 90° (d) 51°

14. If the angles $(2x)^\circ$ and $(3x)^\circ$ are complementary, then $x =$

(a) 20 (b) 25 (c) 18 (d) 36

15. Identify the unlike term from the following terms.

(a) $-8x^2yz$ (b) $4yzx^2$ (c) $4yzx$ (d) yx^2z

16. The constant term in the expression $8x^2 + 5y + 2z + 9$ is:

(a) 8 (b) 5 (c) 2 (d) 9

17. The value of $x^2 + 5x + 1$ if $x = 2$ is:

(a) 20 (b) 15 (c) 10 (d) 8

18. The exponential form of $x \times x \times y \times y \times y \times y \times z \times z$ is:

(a) $2x4y2z$ (b) x^2y^3z (c) $5xyz$ (d) $x^2y^4z^2$

19. Statement (S): The sum of interior angles of a triangle is 180°.

Reason (R): The exterior angle of a triangle is equal to the sum of its interior opposite angles.

(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): $2^{10} \times 2^2 = 2^5$.

Reason (R): $x^m \div x^n = x^{m-n}$.

(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. Verify the distributive law a × (b + c) = $a \times b + a \times c$ for integers $a = 2$, $b = -1$ and $c = 3$.

22. The area of a rectangular field is 9.625 sq m. If its length is 3.5 m, find the breadth of the field.

OR

Find the area of a rectangular park whose sides are 10.25 m and 7.4 m.

23. Find two rational numbers between $\frac{1}{3}$ and $\frac{1}{2}$.

24. Express the polynomial $2m^3 + 8 - 21m^5$ in the standard form and identify its type based on the number of terms.

25. △ABC is an isosceles triangle with AB = AC. If ∠A = 80°, find ∠C.

OR

The angles of a triangle are in the ratio 5 : 6 : 7. Find the angles.

26. One of the exterior angles of a △ABC measures 140°. If one of its interior opposite angles is 65°, find the other two interior angles of the triangle.

27. Write the number 305000000 in standard form.

SECTION C

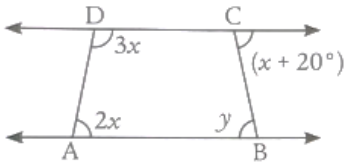
28. Prabha makes a profit of ₹12/kg by selling fresh tomatoes. She sells onions at a loss of ₹8/kg. Today she has neither earned any profit nor incurred a loss. She has sold 20 kg of tomatoes. What quantity of onions did she sell today?

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

Column I	Column II
a. 10.32×0.001	i. 103.2
b. $10.32 \div 0.1$	ii. 25.8
c. $10.32 \div 0.4$	iii. 11.352
d. 10.32×1.1	iv. 0.01032

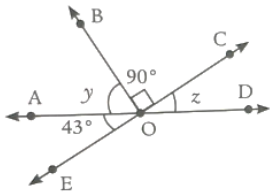
30. Solve $5(x + 7) = 120$. Also verify the answer.

31. In the following figure, AB || CD. Find x and y.



OR

Find y and z in the following figure.



32. Find the value of $\left(\frac{2}{3}-\frac{3}{4}\right)\div\left(\frac{5}{6}+\frac{6}{5}\right)$.

OR

Verify $x\times(y+z)=x\times y+x\times z$, for $x=\frac{2}{3}, y=\frac{-1}{3}, z=\frac{1}{4}$.

33. In Kiran's residential society two towers are 28 m and 36 m high and the distance between their feet is 15 m. A string has to be tied from the top of one tower to the top of the other. Find the distance between the top of these two towers.

34. If $A=2x^2-x, B=3x^2+5x+1$ and $C=-x^2+5$, then find (A + B) – C.

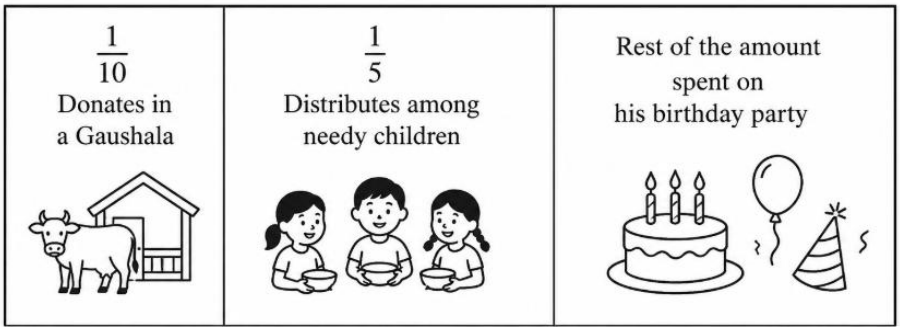
35. Simplify $\{(7x-8y)-(8x-y)\}-\{(4x+y)-(5x-6y)\}$.

36. Using the laws of exponents, simplify $\frac{2^3 \times 9^2 \times 6^2}{4^2 \times 18}$.

SECTION D

37. Raghav decided to spent a certain amount on his birthday in the following manner.

- $\left(\frac{1}{10}\right)^{th}$ of the amount he donates in a Gaushala.
- $\left(\frac{1}{5}\right)^{th}$ of the amount he distributes among needy children.
- The rest of the amount he will spent on his birthday party.



Based on this information answer the following questions:

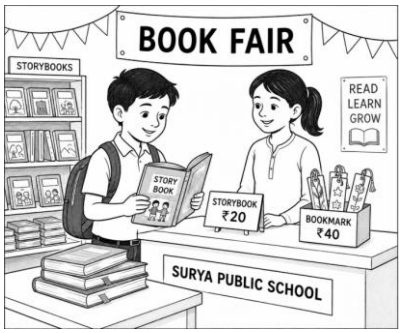
a. If the amount spend on his birthday is ₹2,100, then find the total amount spent on his birthday. (3)

b. Find the amount donated to a Gaushala. (1)

c. Find the amount distributed among needy children. (1)

38. The students of Surya Public School visited a book fair. Aarav wanted to buy some storybooks. Each storybook costs the same amount ₹20. He also bought a bookmark for ₹40.

The total amount he paid was ₹520.



Based on the above information, answer the following questions:

a. Assuming the number of storybooks bought by Aarav is x, represent the situation in the form of linear equation. (1)
b. Find the value of x. (2)
c. Verify whether the value of x is correct. (2)