Goa Board
Class VII Mathematics
Sample Paper - 4

Time: 3 hours   **Total Marks: 90**

General Instructions:

1. **All** questions are **compulsory**.
2. The question paper consists of **38** questions and it is divided into **four sections:** A, B, C and D.
3. **Section A** comprises of **12** questions carrying 1 mark each.
4. **Section B** comprises of **8** questions carrying 2 marks each.
5. **Section C** comprises of **10** questions carrying 3 marks each.
6. **Section D** comprises of **8** questions carrying 4 marks each.
7. Question numbers **1 to 12** in **Section A** are multiple choice questions where you are to select **one** correct option out of the given four.

Section A
(Questions 1 to 12 carry 1 mark each)

1. The mode of following data is as shown below:
    4, 5, 4, 3, 4, 3, 1
    A. 1
    B. 2
    C. 3
    D. 4

2. If on adding 9 to twice of a whole number gives 31, then the whole number is given by:
    A. 21
    B. 16
    C. 11
    D. 7

3. In the figure given below, name the parts of the triangles that can be used to prove the congruence of the two triangles.
   A. AB=AD; BC=DE; ∠B = ∠D
    B. AC=AE; AB=AD; BC = DE ∠D
    C. ∠B = ∠D; ∠C = ∠E
    D. ∠B = ∠D; ∠C = ∠E ; AB=AD

4. If 6% of a number is 240, then the number is which of the options listed below:
    A. 6000
    B. 4800
    C. 2400
    D. 4000

5. What is the number of rational numbers between $\dfrac{27}{16}$ and $\dfrac{35}{16}$?

    A. 8
    B. 9
    C. 16
    D. More than 16

6. Given BC = 5 cm, AC = 5.5 cm. Which of the following part is required to construct triangle ABC?
    A. $\angle$C
    B. $\angle$B
    C. $\angle$A
    D. None of the above

7. Name the solid whose different views are same.
    A. Cuboid
    B. Cube
    C. Sphere
    D. Cylinder

8. An algebraic expression obtained by multiplying x^2 with 12 and subtracting 5 from it is _____.
    A. $12x^2 - 5$
    B. $7x^2$
    C. $5 - 12x^2$
    D. $-7x^2$

9. The exponential expression $\dfrac{3^4 \times 12^2}{9}$ can be expressed as shown below:

    A. $3^{12} \times 2^4$
    B. $3^{12} \times 2^3$
    C. $2^3 \times 3^9$
    D. $3^4 \times 4^2$

10. The order of rotational symmetry of wall clock is as shown below:
   A. 1
   B. 2
   C. 3
   D. 4

11. Name the solid whose net is as shown below:
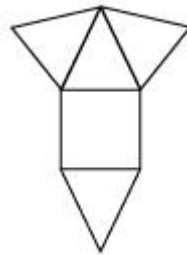
   A. Cuboid
   B. Square Pyramid
   C. Cylinder
   D. Cone

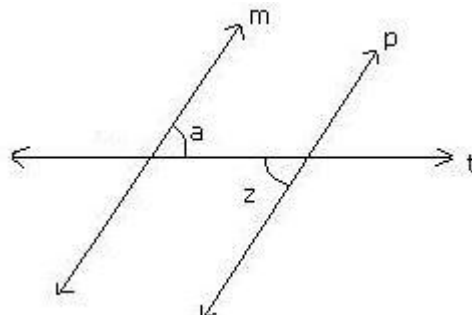12. Area of a circle whose radius is 5 cm is which of the following options?
   A. 5π
   B. 10π
   C. 2π
   D. 25π

Section B
(Questions 13 to 20 carry 2 marks each)

13. In the figure below, lines m and p are parallel; t is a transversal.
   If $\angle a = 57^{\circ}$, then find $\angle z$.

14. Calculate median and mode for following data:

23, 45, 46, 12, 34, 87, 78, 12, 65, 33, 19, 34, 55, 67, 81, 12, 56, 98, 11,49, 50

15. Find the value of the following expression using suitable property:

725 × (-35) + (-725) × 65

16. What will you get on subtracting -134 from the sum of 38 and -87?

17. Three candidates contested in an election and received 1136, 7636 and 11628 votes, respectively. What percentage of the total votes did the winning candidate get?

18. Order these numbers from least to greatest:

$$\frac{-5}{7}, \frac{-11}{7}, \frac{-2}{-7}, \frac{1}{7}$$

19. Add: 4x + 6 and 3x - 7.

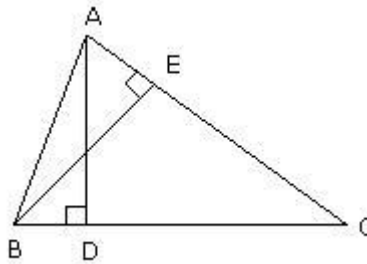20. Name the cross-sections obtained after giving a vertical cut and a horizontal cut to the following solid.

Section C
(Questions 21 to 30 carry 3 marks each)

21. Find the values of x and y in the following figure.
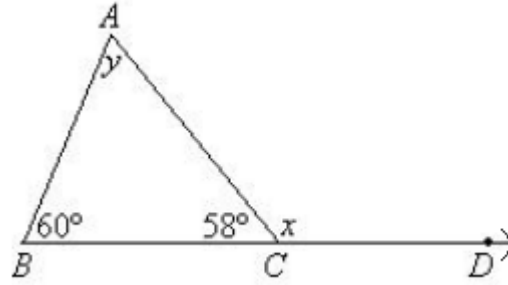
22. In ΔABC shown below, AD⊥BC, BE⊥AC and AD = BE. Prove that AE = BD.

23. Find four rational numbers between -3 and -1.

24. A person borrows Rs. 5000 for 2 years at 4% p.a. simple interest. He immediately lends it to another person at $6\frac{1}{4}$% p.a. for 2 years. Find his gain in the transaction per year.

25. Draw a triangle PQR, where PQ = 5.7 cm, $\angle$P = 45° and $\angle$Q = 30°.

26. A rectangle whose area is 24 m² has a length that is 2 m longer than the width. What are the dimensions of the rectangle?

27. Mala finished drinking a glass of milk in $\frac{7}{8}$ minutes while Varun took $\frac{9}{16}$ minutes to drink the same amount of milk. Who took longer time and by how much?

28. Find the value of the following expressions:

    (a) $\frac{3}{5} \div (-2)$ (b) $(-7) \div \left(\frac{-5}{4}\right)$

29. The area of a circular cardboard sheet is 154 cm². Find the radius of sheet.

30. The average (mean) of a list of 6 numbers is 20. If we remove one of the numbers, the average of the remaining numbers is 15. Find the number that was removed.

Section D
(Questions 31 to 38 carry 3 marks each)

31. Draw a line segment AB, take a point P below it. Through P draw a line parallel to AB using ruler and compass only.

32. The ages of Rahul and Karan are in the ratio 7:5. Ten years hence, the ratios of their ages will be 9:7. Find their present age.

33. The number of trees planted by an agency in different years is given below:

Years	1997	1998	1999	2000	2001	2002
Number of trees planted	400	450	700	750	900	1500

Draw a bar graph.

34. The perimeter of a square is same as that of the rectangle. Find the side of the square if the dimensions of the rectangle are 10 m × 8 m.

35. Harish sold a bicycle at 8% gain. Had it been sold for Rs. 75 more, the gain would have been 14%. Find the cost price of the bicycle.

36. If the sum of the sides of a right triangle is 49 inches and the hypotenuse is 41 inches, find the two sides.

37. Simplify: $20x - [15x^3 + 5x^2 - \{8x^2 - (4 - 2x - x^3) - 5x^3\} - 2x]$.

38. Simplify and reduce to standard form:

(a) $\dfrac{-15}{35} \times \left(\dfrac{27}{-63} \div \dfrac{81}{14} \right)$

(b) $\left(\dfrac{-2}{-72} \div \dfrac{4}{9} \right) \div \dfrac{-6}{14}$