CBSE Class 10 – Mathematics (Standard)

Practice Question Paper – Set 2

Time: 3 Hours
Maximum Marks: 80

GENERAL INSTRUCTIONS

1. All questions are compulsory.
2. The question paper consists of **5 Sections A, B, C, D and E**.
3. Use of calculator is not permitted.
4. Draw neat diagrams wherever required.
5. Use of appropriate mathematical steps is mandatory.

SECTION A – MCQs

(1 × 20 = 20 Marks)

1. The zero of the polynomial x–7x – 7x–7 is:
   (a) –7
   (b) 7
   (c) 0
   (d) 1
2. The number of solutions of the equation $x2+4=0$$x^2 + 4 = 0$$x2+4=0$ is:
   (a) 2
   (b) 1
   (c) 0
   (d) infinite
3. The graph of a linear equation in two variables is a:
   (a) curve
   (b) circle
   (c) straight line
   (d) parabola
4. The HCF of 306 and 657 is:
   (a) 9
   (b) 18
   (c) 27
   (d) 3
5. The value of $\cos 60°$$\cos 60^\circ$$\cos 60°$ is:
   (a) 1
   (b) √3/2

    (c) 1/2

    (d) 0

6. If two triangles are congruent, then their areas are:
    (a) equal
    (b) in ratio 2:1
    (c) in ratio of sides
    (d) unequal

7. The coordinates of the origin are:
    (a) (1, 0)
    (b) (0, 1)
    (c) (0, 0)
    (d) (–1, 0)

8. The probability of getting a head when a coin is tossed is:
    (a) 0
    (b) 1
    (c) 1/2
    (d) 1/4

9. The curved surface area of a sphere is:
    (a) $2\pi r^2$
    (b) $3\pi r^2$
    (c) $4\pi r^2$
    (d) πr^2

10. The value of $\tan 0^\circ$ is:
    (a) 0
    (b) 1
    (c) √3
    (d) undefined

11–20. MCQs from **AP, Circles, Statistics, Surface Areas & Volumes, Triangles** (as per CBSE pattern).

SECTION B – Very Short Answer

(2 × 5 = 10 Marks)

21. Find the zero of the polynomial $5x–10$.
22. Write the formula for the sum of first n terms of an AP.
23. Find the value of $\tan 30^\circ$.
24. Find the distance between the points (3, 4) and (6, 8).
25. Write the formula for the volume of a sphere.

SECTION C – Short Answer

(3 × 6 = 18 Marks)

26. Find the zeros of the quadratic polynomial
   $x^2 - 3x - 10$ and verify the relationship between zeros and coefficients.
27. Solve the linear equation:
   $\frac{x}{3} + \frac{x}{4} = 7$
28. Find the HCF of 135 and 225 using Euclid's Division Algorithm.
29. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.
30. Find the coordinates of the point dividing the line segment joining (–2, –2) and (4, 4) internally in the ratio 1:2.
31. Find the value of:

$$\frac{\sin 45^\circ}{\cos 45^\circ} + \cos 60^\circ$$

SECTION D – Long Answer

(5 × 5 = 25 Marks)

32. Solve the quadratic equation by quadratic formula:

$$2x^2 - 7x + 3 = 0$$

33. Find the 15th term of the AP:
   7, 13, 19, 25, …
34. Find the area of a sector of a circle of radius 14 cm and angle 90°.
   (Take $\pi = \frac{22}{7}$)
35. Find the volume of a cone of radius 3.5 cm and height 6 cm.
36. Calculate the mean of the following data using the **direct method**:

x	5	10	15	20	25
f	3	7	12	8	4

SECTION E – Case Study Based Question

(5 Marks)

37. **Case Study: Arithmetic Progression**

The monthly savings (in ₹) of a student form an AP:
500, 550, 600, 650, …

Answer the following:

a) Find the first term and common difference.
b) Find the savings in the 10th month.
c) Find the total savings after 12 months.

☐ ANSWER KEY / MARKING POINTS (Set 2)

Section A (Key answers)

1. (b)
2. (c)
3. (c)
4. (c)
5. (c)
6. (a)
7. (c)
8. (c)
9. (c)
10. (a)

Section B

21. $x = 2$
22. $S_n = \frac{n}{2}[2a + (n-1)d]$
23. $\frac{1}{\sqrt{3}}$
24. 5 units
25. $\frac{4}{3}\pi r^3$

Section C & D

- Step-wise solutions compulsory
- Correct formula + substitution + final answer
- Diagrams wherever applicable

Section E

- $a = 500$, $d = 50$
- 10th term = ₹950
- Total savings after 12 months = ₹9300