Mathematics

Practice Test Paper 6

(Chapter 4: Quadratic Equations)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A - 5 marks; Section B - 8 marks; Section C - 9 marks; Section D - 3 marks.
3. Choose one correct option in Section A. Show the necessary steps and reasoning in Sections B, C and D.
4. Use algebraic methods where required. Use of calculators is not allowed.

SECTION A

(5 questions × 1 mark = 5 marks)

1. For $(m - 3)x^2 + 2x + 1 = 0$ to be quadratic:

(A) $m = 3$ (B) $m \neq 3$

(C) $m = 0$ (D) $m > 3$

2. Which pair of roots belongs to $x^2 - x - 12 = 0$?

(A) 3 and −4

(B) −3 and −4

(C) 4 and −3

(D) 3 and 4

3. The discriminant of $4x^2 + 4x + 1 = 0$ is:

(A) 0 (B) 1

(C) 8 (D) 16

4. Which equation has no real roots?

(A) $x^2 - 2 = 0$

(B) $x^2 - 2x + 1 = 0$

(C) $x^2 + x - 2 = 0$

(D) $x^2 + 2x + 5 = 0$

5. Two consecutive positive integers with smaller integer x have product:

(A) $x^2 + 2$ (B) $x(x + 1)$

(C) $x(x - 2)$ (D) $2x + 1$

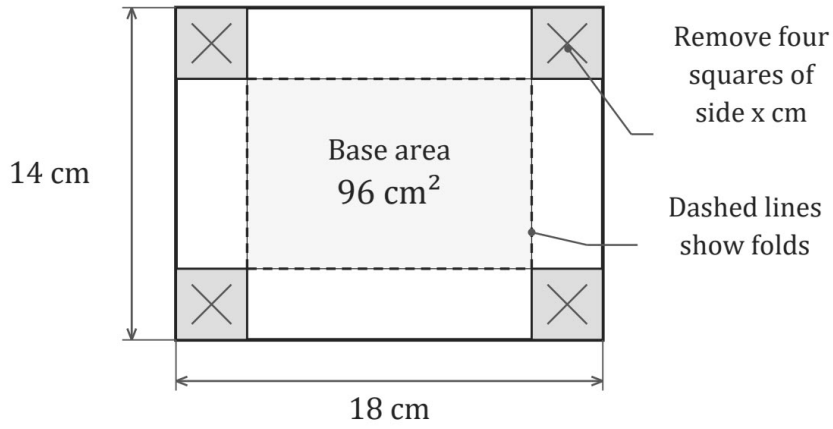
SECTION B

(4 questions × 2 marks = 8 marks)

6. Solve $2x^2 - 5x + 3 = 0$ by factorisation.

7. Find all a for which $3ax^2 - 6x + 1 = 0$ has no real roots.

8. Squares of side x cm are cut from the corners of the sheet shown. The remaining rectangular base has area 96 cm^2. Find the valid x.



9. Simplify $x(x + 3) + 4 = (x + 1)(x + 2)$. Is it a quadratic equation? Does it have a solution?

SECTION C

(3 questions × 3 marks = 9 marks)

10. A cottage industry makes x toys in a day. The production cost per toy is ₹(55 − x), and the day's total production cost is ₹750. Find all possible numbers of toys.

11. Use the quadratic formula to solve $3x^2 - 5x - 1 = 0$. Give exact roots.

12. A train covers 360 km. Increasing its speed by 5 km/h would reduce the journey time by 48 minutes. Find its original speed.

SECTION D

(Application Based Question - 3 marks)

13. A puzzle card describes two consecutive positive odd numbers whose product is 255. Let the smaller number be x.

(i) Express the larger number and form an equation.

(ii) Find the smaller number.

(iii) Find the sum of the two numbers.