



B K BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS

A CBSE DAY-CUM BOYS' RESIDENTIAL SCHOOL

PERIODIC TEST-1 (2026-27)

MATHEMATICS (041)

SET-02



Class : X

Duration :1Hrs.

Date : 15/06/26

Max.Marks:25

Admission No.:

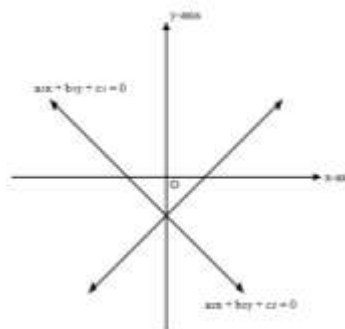
Roll No:

General Instructions:

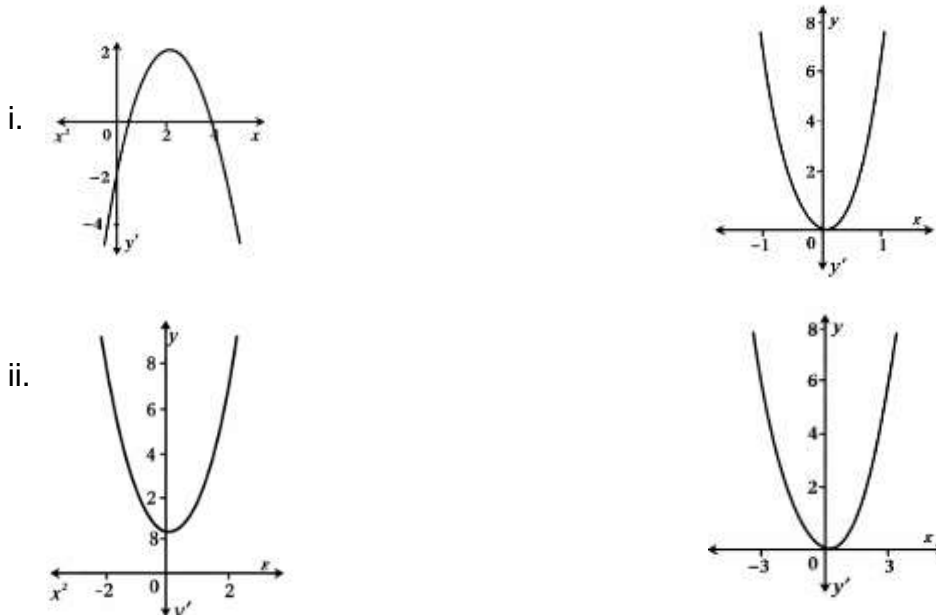
- This question paper consists of 5 sections: A, B, C, D, and E.
- Section A contains 6 questions of 1 mark each. All questions are compulsory.
- Section B contains very short questions of 2 marks each.
- Section C contains short answer questions of 3 marks each.
- Section D contains long answer question of 5 marks.
- Section E contains a case-study-based question OF 4 marks
- Use of calculator is not permitted.
- Draw neat diagrams wherever required.
- Show all necessary steps for full marks.
- Read all questions carefully before attempting.

SECTION A

1. The pair of linear equations $3x - 15y = 7$, $2x - 10y = \frac{14}{3}$ has
- | | | |
|--------------------------|-----------------------------|---|
| a. A unique solution | c. Infinitely many solution | 1 |
| b. Exactly two solutions | d. No solution | |
2. 3. The lines representing the given pair of equation are non-intersecting. which of the following statement is not true
- | | |
|--|---|
| a. $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ | 1 |
| b. $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ | |
| c. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} = \frac{c_1}{c_2}$ | |
| d. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ | |



3. Aman solved a quadratic equation and found its real root not exist. Which of these could represent the graph of equation aman solved.



1

- a. Only ii
b. Only iii and ii
c. only I and ii
d. only I , iii and iv

4. The Nature of roots of the equation $9x^2 - 6x - 2 = 0$ are
a. 2 distinct real roots
b. More than 2 roots
c. not real roots
d. real and equal roots both

1

5. The sum of roots of the equation $x^2 - 6x + 2 = 0$ is
a. 2
b. -2
c. 6
d. -6

1

6. This is a Assertion and Reason based question. Two statements are given, one labelled as Assertion (A) and the other is labelled as Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below.

- a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
c. Assertion (A) is true, but Reason (R) is false.
d. Assertion (A) is false, but Reason (R) is true.

1

Assertion (A) : $x = 1, y = 1$ is a solution of pair of equation $4x - 3y = 1; 5x - 7y = -2$.

Reason (R): A pair of values (x, y) satisfying each one of equation in a given system of two simultaneous linear equation in x and y is called solution of system of equation.

SECTION – {B}

(This section comprises of very short answer type questions (VSA) of 2 mark each)

7. Solve the following pair of linear equations. Show your work
- $$\begin{aligned}x + 2y &= 8 \\ 2x + y &= 7\end{aligned}$$
8. Find any two quadratic equation whose roots are -2 & 3 . How many such equation you can write?

SECTION – {C}

(This section comprises of short answer type questions (SA) of 3 mark each)

9. The angry Arjun carried some arrows for fighting with Bheeshm. With half the arrows, he cut down the arrows thrown by Bheeshm on him and with six other arrows he killed the rath driver of Bheeshm. With one arrow each he knocked down respectively the rath, flag and the bow of Bheeshm. Finally, with one more than four times the square root of arrows he laid Bheeshm unconscious on an arrow bed. Find the total number of arrows Arjun had.
10. If -2 is a root of the equation $3x^2 + 7x + p = 0$, find the value of k so that the roots of the equation $x^2 + k(4x + k - 1) + p = 0$ are equal.

SECTION – {D}

(This section comprises of Long answer type questions (LA) of 5 mark)

11. Two water taps together can fill a tank in $22\frac{2}{9}$ minutes the tap of larger diameter takes 10 minutes less than the smaller one to fill the tank separately find the time in which each tap can separately fill the tank

SECTION – {E}

(This section comprises of CASE BASED questions (CBQ) of 4 mark)

12. It is common that governments revise travel fares based on purchasing power for different vehicles like autos, rickshaws, taxis, radio cabs, etc. The auto charges in a city comprise a fixed charge plus a charge for the distance covered.



Study the following table:

Name of the city	Distance travelled (KM)	Amount paid (in Rs.)
Pune	10	75
	15	110
Delhi	8	91
	14	145

- I. If the fixed charge is $Rs\ x$ and the running charge is $Rs\ y$ per km, form a pair of linear equations representing the situation. **(In Delhi)**
- II. If the fixed charge is $Rs\ x$ and the running charge is $Rs\ y$ per km, form a pair of linear equations representing the situation. **(In Pune)**
- III. Find the amount to be paid for travelling 100 km in pune.
- IV. Find the amount to be paid for travelling 60 km in Delhi