

BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

Pre-Mid Term (MARKING KEY) 2024-25

MATHEMATICS (041)



B K BIRLA CENTRE
FOR EDUCATION
(Sarala Birla Group of Schools)



MAX. MARKS: 25
DATE 02/08/24

CLASS: X

TIME: 1 HR

General Instructions:

1. This Question Paper has 3 Sections A, B and C.
2. Section A has 10 MCQs carrying 1 mark each
3. Section B has 3 questions carrying 02 marks each.
4. Section C has 3 questions carrying 03 marks each.
5. All Questions are compulsory.

SECTION A

- 1 Graphically, the pair of equations $7x - y = 5$; $21x - 3y = 10$ represents two lines which are 1
(a) intersecting at one point
(b) **parallel**
(c) intersecting at two points
(d) coincident
- 2 If a pair of linear equations is consistent, then the lines will be 1
(a) always coincident
(b) parallel
(c) always intersecting
(d) **intersecting or coincident**
- 3 Two equations in two variables taken together are called 1
(a) linear equations
(b) quadratic equations
(c) **simultaneous equations**
(d) none of these
- 4 The graph of the equation $2x + 3y = 5$ is a 1
(a) vertical line
(b) **straight line**
(c) horizontal line
(d) none of these
- 5 The sum of the roots of the equation $x^2 - 6x + 2 = 0$ is 1
(a) 2
(b) -2
(c) **6**
(d) none of these
- 6 The quadratic equation has degree 1
(a) 0
(b) 1

- (c) 2
(d) 3

7 The polynomial equation $x(x + 1) + 8 = (x + 2)(x - 2)$ is 1
(a) linear equation
 (b) quadratic equation
 (c) cubic equation
 (d) bi-quadratic equation

8 If the roots of $px^2 + qx + 2 = 0$ are reciprocal of each other, then 1
 (a) $P = 0$
 (b) $p = -2$
 (c) $p = \pm 2$
(d) $p = 2$

9 (A) Assertion: The pairs of equations $x+2y-5 = 0$ and $-4x-8y+20=0$ have infinitely many solutions. 1
 (R) Reason: if $a_1/a_2 = b_1/b_2 = c_1/c_2$ then the pair of equations has infinitely many solutions.

(a) Both assertion (A) and reason (R) are true and reason(R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason(R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

10 (A) Assertion: The quadratic equation $4x^2+6x+3$ has no real roots. 1
 (R) Reason: The value of the discriminant is -12 .

(a) Both assertion (A) and reason (R) are true and reason(R) is the correct explanation of assertion (A).

(b) Both assertion (A) and reason (R) are true but reason(R) is not the correct explanation of assertion (A).

(c) Assertion (A) is true but reason (R) is false.

(d) Assertion (A) is false but reason (R) is true.

SECTION B

11 Solve the following pair of linear equations for x and y: 2
 $141x + 93y = 189$;
 $93x + 141y = 45$

Ans: Add, $x + y = 1$
 Subtract, $x - y = 3$ 1m
 $x = 2, y = -1$ 1m

12 Find the value of m so that the quadratic equation $mx(x - 7) + 49 = 0$ has two equal roots. 1m
 Ans: $D = 0$
 $b^2 - 4ac = 0$
 $m = 4$ 1m

13 Solve each of the following equations 2m
 (a) $9x^2 - 3x - 2 = 0$
 (b) $4x^2 + 5x = 0$
 Ans: (a) $x = 2/3, -1/3$ 1m
 (b) $x = 0, -5/4$ 1m

SECTION C

14 Draw the graph of 3m
 $2y = 4x - 6$; $2x = y + 3$ and determine whether this system of linear equations has a unique solution or not.
 Ans: Three points 1.5m
 Graph 1.5m

- 15 The rectangular garden has a perimeter, and half of it measures 36 m. If the length is 4 m greater than the width, determine the dimensions of the garden. 1m
- Ans. $x + x + 4 = 36$ 1m
 $L = 16\text{m}$ 1m
 $B = 20\text{m}$ 1m
- 16 For which values of a and b do the following pair of linear equations have infinite solutions? 3
- $2x + 3y = 7$
 $(a - b)x + (a + b)y = 3a + b - 2$
- Ans: Condition of consistency 1m
 $a = 5$ 1m
 $b = 1$ 1m

*****BEST OF LUCK*****