RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

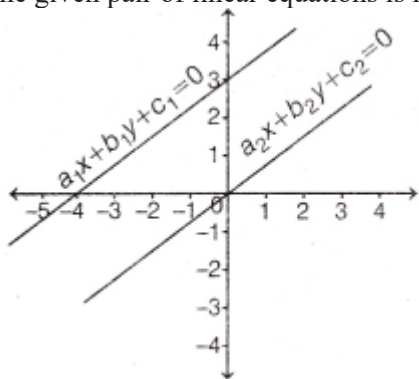**Grade : X** marks   **Marks: 40**

Chapter: LINEAR EQUATIONS   SET-1   **Time: 90 minutes**

SECTION A

(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

1. he given pair of linear equations is non-intersecting. Which of the following statements is true? [1]

(a) $a_1/a_2 = b_1/b_2 = c_1/c_2$ (b) $a_1/a_2 = b_1/b_2 \neq c_1/c_2$ (C) $a_1/a_2 \neq b_1/b_2 = c_1/c_2$ (d) $a_1/a_2 \neq b_1/b_2 \neq c_1/c_2$

2. The value of p in which the system of linear equations $-x + py = 1$ and $px – y = 1$ represent parallel lines is

    (a) 0   (b) 1   (c) -1   (d) 2

3. If the pair of linear equations $3x + y = 3$ and $6x + ky = 8$ does not have a solution, then the value of k is

    (a) 2   (b) -3   (c) 0   (d) 1

4. The pair of linear equations $x + 2y = 5$ and $3x + 12y = 10$ has

    (a) unique solution   (b) no solution   (c) more than two solutions   (d) infinitely many solutions

5. The sum of two numbers is 137 and their difference is 43. This situation can be algebraically represented as

    (a) $x – y = 137, x + y = 180$ (b) $2(x + y) = 137, 2(x – y) = 43$ (c) $x + y = 137, x – y = 43$ (d) $x + y = 43, x – y = 137$

6. If the lines given by $4x + ky = 1$ and $6x – 10y = 14$ has unique solution, then the value of k is

    (a) 20/3   (b) – 5/7   (c) – 15   (d) all real values except – 20/3

7. Assertion (A) : The system of equations $2x + 3y + 5 = 0$ and $4x + ky + 7 = 0$ is inconsistent when k = 6. Reason (R) : The system of equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ is inconsistent when $a_1/a_2 = b_1/b_2 \neq c_1/c_2$.

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

correct explanation of Assertion (A). but Reason (R) is false.

8. The following pair of linear equations, $x = y$ and $x - 2 = y - 2$ are

   (a) perpendicular   (b) coincident   (c) intersecting   (d) parallel

9. The point at which the pair of equations $4^{x+y} = 256$ and $256^{x-y} = 4$ will intersect, is

   (a) (178, 158)   (b) (158, 178)   (c) (817, 815)   (d) (815, 817)

10. The pair of linear equation $2x + ky - 3 = 0$, $6x + 23y + 7 = 0$ has a unique solution, if

   (a) $k = 2/3\pi$ (b) $k \neq 2/3\pi$ (c) $k \neq 5$ (d) $k \neq 75/6\pi$

SECTION B
(This section comprises of very short answer type-questions (VSA) of 2 marks each)

11. 5 yr hence, the age of Shivangi small be 3 times the age of Anshika while 5 yr earlier the age of Shivangi was 7 times the age of Anshika. Find the present age of Shivangi.

12. Check whether the lines $x + y = 1$ and $2x + y = x + 2$ are either parallel or perpendicular.

13. The students of a class are made to stand in rows. If 4 students are extra in each row, there would be 2 rows less. If 4 students are less in each row, there would be 4 rows more, then find the number of students in the class

SECTION C
(This section comprises of short answer type questions (SA) of 3 marks each)

14. The sum of a two-digit number and the number obtained by reversing the digits is 66. If the digits of the number differ by 2, find the number. How many such numbers are there?

15. Solve the following pair of linear equation by using substitution method
    $2x + 3y = 11$
    $2x - 4y = -24$

16. For what value of p, will the following system of linear equations represent parallel lines?
    $-x + py = 1$ and $px - y = 1$

SECTION D
(This section comprises of long answer-type questions (LA) of 5 marks each)

17. Draw the graphs of $2x + y = 6$ and $2x - y + 2 = 0$. Shade the region bounded by these lines and X-axis. Find the area of the shaded region.

18. Places P_1 and P_2 are 250 km apart from each other on a national highway. A car starts from P_1 and another from P_2 at the same time. If they go in the same direction, then they meet in 5 h and if they go in opposite directions they meet in 25/13 h, then find their speeds.

19. The Resident Welfare Association of a colony decided to build two straight paths in their neighbourhood park such that they do not cross each other, to plant trees along the boundary lines of each path. One of the members of association, Sarika suggested that the paths should be constructed represented by the two linear equations $x - 3y = 2$ and $-2x + 6y = 5$. Check whether the two paths will cross each other or not.