

# Mathematics

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(Chapter – 3) (Pair of Linear Equations in two Variables) (Practice Test 6)

(Class X)

Time: 2 hour

M. M: 50

## General Instructions:

1. This question paper contains four sections: A, B, C and D. Each part is compulsory.
2. Section A has 10 MCQ of one mark each.
3. Section B has 5 questions of two marks each.
4. Section C has 6 questions of three marks each. Attempt any 5 out of 6.
5. Section D has 5 questions of five marks each, attempt any 3 out of 5.
6. There is no negative marking.

## [Section – A]

1. The line  $x - y + 1 = 0$  meets Y-axis at:  
(A) (0, 1) (B) (4, 0) (C) (2, 3) (D) (0, 6)
2. The solutions of the system of equations,  $x - y + 1 = 0$ ,  $3x + 2y - 12 = 0$  is:  
(A) (0, 1) (B) (4, 0) (C) (2, 3) (D) (0, 6)
3. The sum of a two-digit number is 8. The number obtained by reversing the digits exceeds the number by 18. Then the given number is:  
(A) 53 (B) 35 (C) 26 (D) 62
4. Equation of line m is:  
(A)  $x = -2$  (B)  $x = 2$  (C)  $y = 2$  (D)  $y = -2$
5. The figure obtained by lines l, m, x-axis and y-axis, cannot be the:  
(A) square (B) rectangle (C) trapezium (D) triangle
6. Coordinates of A, B, C (in order) are:  
(A) (2,0), (2, -2) (0, -2) (B) (0,2), (-2,2), (-2,0)  
(C) (-2,0), (2,2), (0, -2) (D) (0,2), (2,2), (0, -2)
7. One equation of a pair of dependent linear equations is  $2x + 5y = 3$ . The second equation will be  
(A)  $2x + 5y = 6$  (B)  $3x + 5y = 3$   
(C)  $-10x - 25y + 15 = 0$  (D)  $10x + 25y = 15$
8. The graph of  $y = 5$  is a line parallel to the  
(A) x-axis (B) y-axis  
(C) both axis (D) none of these
9. The value of k, for which the system of equations  $x + (k + 1)y = 5$  and  $(k + 1)x + 9y = 8k - 1$  has infinitely many solutions is  
(A) 2 (B) 3 (C) 4 (D) 5
10. If in the equation  $x + 2y = 10$ , the value of y is 6, then the value of x will be  
(A) -2 (B) 2 (C) 4 (D) 5

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[Section - B]

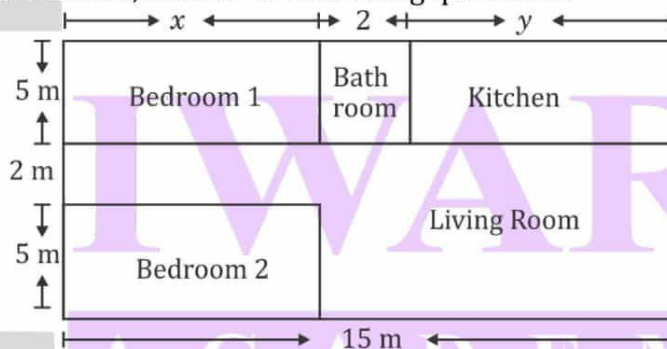
- Find the number of solutions of the following pair of linear equations:  
 $x + 2y - 8 = 0$  and  $2x + 4y = 16$ .
- Write whether the following pair of linear equations is consistent or not.  $x + y = 14$ ,  $x - y = 4$
- Given the linear equation  $3x + 4y - 8 = 0$ , write another linear equation in two variables such that the geometrical representation of the pair so formed is parallel lines.
- Find the value of  $k$  for which the given pair of linear equations has no common solution.  
 $4x + Ay = 5$  and  $8x + 12y = 10$
- Solve the following pair of linear equations by substitution method:  $2x - 3y + 15 = 0$ ;  $3x - 5 = 0$ .

[Section - C]

- Solve for  $x$  and  $y$  by the method of elimination:  $4x - 3y = 1$ ;  $5x - 7y = 2$ .
- Find the value of  $k$  so that the following system of equation has infinite solutions:  
 $3x - y - 5 = 0$ ,  $6x - 2y + k = 0$
- Solve for  $x$  and  $y$ :  $x + 6y = 6$ ,  $3x - 8y = 5$
- A fraction becomes  $\frac{1}{3}$  when 1 is subtracted from the numerator and becomes  $\frac{1}{4}$  when 8 is added to its denominator. Find the fraction.
- Solve the following pairs of linear equations by the elimination method:  
 $3x - 5y - 4 = 0$  and  $9x = 2y + 7$
- The age of the father is twice the sum of the ages of his 2 children. After 20 years, his age will be equal to the sum of the ages of his children. Find the age of the father.

[Section - D]

- Amit is planning to buy a house and the layout is given below. The design and the measurement have been made such that areas of two bedrooms and kitchen together is 95 square metre. Based on the above information, answer the following questions:



- Form the pair of linear equations in two variables from this situation.
- Find the length of the outer boundary of the layout.
- Find the area of each bedroom and kitchen in the layout.
- Find the area of living room in the layout.
- Find the cost of laying tiles in kitchen at the rate of ₹50 per square metre.

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23. Form the pair of linear equations in this problem, and find its solution graphically: 10 students of Class X took part in a Mathematics quiz. If the number of girls is 4 more than the number of boys, find the number of boys and girls who took part in the quiz.
24. The owner of a taxi company decides to run all the taxis on CNG fuel instead of petrol/diesel. The taxi charges in city comprises of fixed charges together with the charge for the distance covered. For a journey of 13 km, the charge paid is ₹129 and for a journey of 22 km, the charge paid is ₹210.
25. Ritu can row downstream 20 km in 2 hours, and upstream 4 km in 2 hours. Find her speed of rowing in still water and the speed of the current.
26. Determine graphically the coordinates of vertices of a triangle, the equation of whose sides are given by  $2y - x = 8$ ,  $5y - x = 14$  and  $y - 2x = 1$ .



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Hints and Answers

## Section - A

1. (0, 1)
2. (2, 3)
3. 35
4.  $y = 2$
5. Triangle
6. (0,2), (-2,2), (-2,0)
7.  $-10x - 25y + 15 = 0$
8. X - axis
9. 2
10. -2

## Section - B

11. infinite many solutions
12. equation is consistent
13.  $k \neq -16$
14. no value of k for which pair of linear equations has no common solution
15.  $x = \frac{5}{3}$ ;  $y = \frac{55}{9}$

## Section - C

16.  $x = 1, y = 1$
17.  $k = -10$ , equations has infinite solutions.
18.  $y = 2, x = 3$
19.  $\frac{5}{12}$
20.  $x = \frac{9}{13}, y = -\frac{5}{13}$
21. present age of father = 40 years

## Section - D

22. (A)  $x + y = 13$   
(B) 54 m  
(C) Area of bedroom = 30 m; area of kitchen = 35 m  
(D) 75 square metre.  
(E) ₹1750
23. Number of girls = 7; number of boys = 3
24. ₹300
25. Speed of Ritu in still water = 6 km/hr; speed of current = 4 km/hr
26. Triangle formed with vertices P(-4, 2), Q(1, 3), R(2, 5)