

INDIAN SCHOOL AL WADI AL KABIR

Class X, Mathematics

Worksheet-Pair of Linear Equations in Two Variables

19-04-2022

Q. No.	Questions of 1 Mark each.
1.	Find the value(s) of k for which the pair of linear equations $kx + y = k^2$ and $x + ky = 1$ have infinitely many solutions.
2.	For what value of k, the pair of linear equations $3x+y=3$ and $6x+ky=8$ does not have a solution.
3.	If 3 chairs and 1 table costs ₹ 1500 and 6 chairs and 1 table costs ₹ 2400. Form linear equations to represent this situation.
4.	For what value (s) of p, will the lines represented by the following pair of linear equations be parallel? $3x - y - 5 = 0$ $6x - 2y - p = 0$
5.	Find whether the pair of linear equations $y = 0$ and $y = -5$ has no solution, unique solution or infinitely many solutions.
Questions of 2 marks each	
6.	Solve $2x - y - 3 = 0$, $4x - y - 5 = 0$ by substitution method.
7.	Given the linear equation $3x + 4y = 9$. Write another linear equation in these two variables such that the geometrical representation of the pair so formed is: (1) intersecting lines (2) coincident lines.
8.	Solve using cross multiplication method: $5x + 4y - 4 = 0$ $x - 12y - 20 = 0$ (2, -3/2)
9.	The sum of two natural numbers is 240 and their ratio is 3:5. Find the greater number. (150)
10.	Solve for x and y: $37x + 43y = 123$; $43x + 37y = 117$.
Questions of 3 marks each	
11.	Solve the following system of linear equations graphically: $2x + 3y = 4$ and $3x - y = -5$. Shade the region bounded by the above lines and y-axis.

12.	Find the values of 'a' and 'b' for which the following pair of linear equations has infinitely many solutions. $2x + y - 5 = 0$, $(a + b)x + (5a - 7b)y - 20 = 0$
13.	Solve for x and y: $152x - 378y = -74$; $-378x + 152y = -604$
14.	Solve for x and y: $\frac{2}{x} + \frac{3}{y} = 2$ $\frac{1}{x} - \frac{1}{2y} = \frac{1}{3}$, $x \neq 0$, $y \neq 0$
15.	Seven times a two-digit number is equal to four times the number obtained by reversing the order of its digits. If the difference of the digits is 3, determine the number.

Questions of 4 marks each

16.	If $2x + y = 23$ and $4x - y = 19$, find the value of $(5y - 2x)$ and $\left(\frac{y}{x} - 2\right)$.
17.	A boat covers 32 km upstream and 36 km downstream in 7 hours. Also, it covers 40 km upstream and 48 km downstream in 9 hours. Find the speed of the boat in still water and that of the stream.
18.	Solve the following pair of linear equations graphically: $2x + 3y = 12$ and $x - y = 1$ Find the area of the region bounded by the two lines representing the above equations and y-axis.

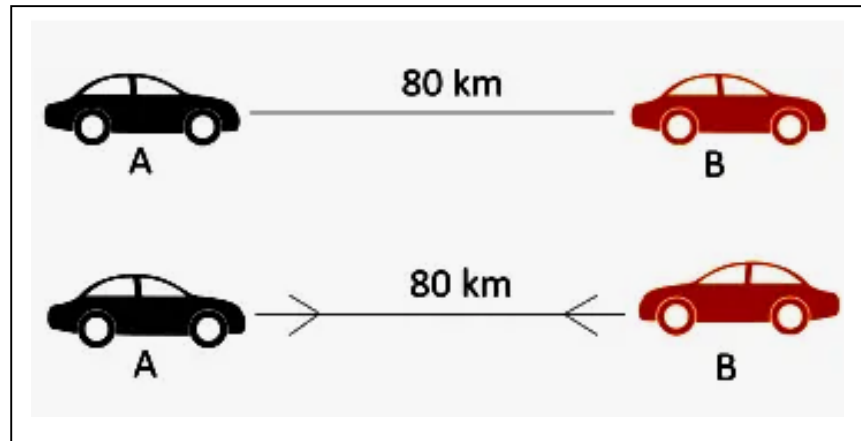
<p>19. Case Study Based: Amit is planning to buy a house and the layout is given below. The design and the measurement have been made such that areas of two bedrooms and kitchen together is 95 sq.m</p> <p>(i) Find the length of the outer boundary of the layout.</p> <p>(ii) Find the area of each bedroom and kitchen in the layout.</p>	
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Case Study Based:

Places A and B are 80 km apart from each other on a highway. A car starts from A and another from B at the same time. If they move in same direction they meet in 8 hours and if they move towards each other they meet in 1 hour 20 minutes. (35 km/hr, 25 km/hr)

- (i) Find the speed of the cars?
 (ii) If the cars are moving in the same direction, find the distance travelled by the car in 5 hours which started from A.

**Answers**

Answers	1	$k=1$	2	$k=2$	3	$3x + y = 1500$ $6x + y = 2400$	4	$p \neq 10$
	5	No solutions	6	$x = 1, y = -1$	8	$x = 2, y = -\frac{3}{2}$	9	150
	10	$x = 1, y = 2$	11	$x = -1, y = 3$	12	$a = 5, b = 3$	13	$x = 2, y = 1$
	14	$x = 2, y = 3$	15	36	16	$31, \frac{-5}{7}$	17	10km/hr, 2km/hr
	18	$x = 3, y = 2,$ 7.5 sq. units	19	(i) 54m (ii) $30\text{m}^2, 35\text{m}^2$	20	(i) 35km/hr, 25km/hr (ii) 175 km		