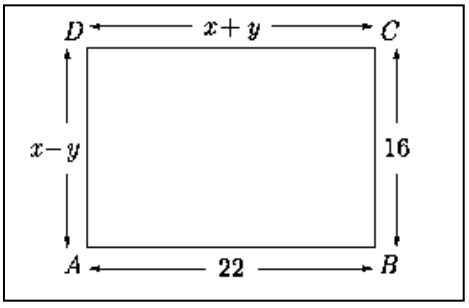
INDIAN SCHOOL AL WADI AL KABIR

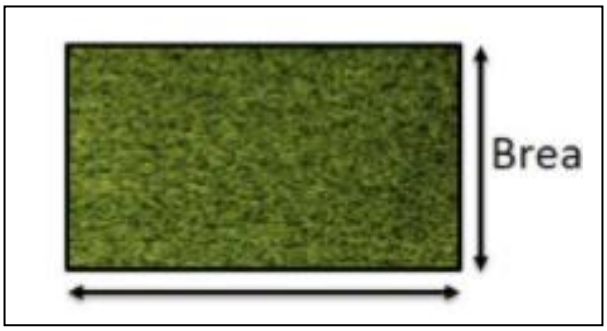
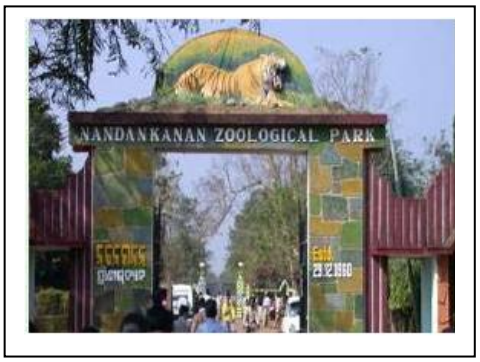
Class X (2025-26), Mathematics

Worksheet- Pair of Linear Equations in Two Variables

Q. No.	Questions of 1 Mark each. (MCQ's)							
1.	The pair of linear equations $y = 0$ and $y = -5$ has:							
	A	Infinitely many solutions	**B**	A unique solution	**C**	Two solutions	**D**	No solutions
2.	The graph of the lines x = a and y = b:							
	A	Intersects at (a, b)	**B**	Intersects at (b, a)	**C**	coincident	**D**	parallel
3.	The value of k for which the pair of equations kx = y + 2 and 6x = 2y + 3 has infinitely many solutions							
	A	is k=3	**B**	does not exist	**C**	is k = -3	**D**	is k=4
4.	One equation of a pair of dependent linear equations is –5x + 7y = 2. The second equation can be:							
	A	10x – 14y = –4	**B**	–10x – 14y + 4 = 0	**C**	–10x + 14y + 4 = 0	**D**	10x + 14y + 4 = 0
5.	Find the value(s) of k so that the pair of equations x + 2y = 5 and 3x + ky + 15 = 0 has a unique solution.							
	A	for all values of k except 6	**B**	6	**C**	−6	**D**	1
6.	If 3 chairs and 1 table costs ₹ 1500 and 6 chairs and 1 table costs ₹ 2400. Form linear equations to represent this situation.							
	A	3x+y+1500 =0 6x+y+2400=0	**B**	-3x+y=1500 6x+y=2400	**C**	3x+y=1500 6x+y=2400	**D**	3x+y=1500 6x-y=2400
7.	The graph of x=3 is a line parallel to:							
	A	x- axis	**B**	y - axis	**C**	both axes	**D**	none of these
8.	If 3x + 4y : x + 2y = 9:4, then find the value of 3x + 5y : 3x - y							
	A	7 : 1	**B**	1 : 7	**C**	2 : 3	**D**	3 : 2
9.	The graphical representation of the pair of equations x + 2y - 4 = 0 and 2x + 4y -12 = 0 represents:							

	A	Intersecting lines	**B**	Parallel lines	**C**	Coincident lines	**D**	All the above
10.	Two lines are given to be parallel. The equation of one of the lines is 3x – 2y = 5. The equation of the second line can be:							
	A	9x + 8y = 7	**B**	-12x - 8y = 7	**C**	-12x + 8y = 7	**D**	12x + 8y = 7
	DIRECTION: In the following questions, a statement of **assertion (A)** is followed by statement of **Reason (R)**. Choose the correct option							
	(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 and 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.							
11.	Assertion (A): The pair of linear equations 5x + 2y + 6 = 0 and 7x + 6y + 18 = 0 have infinitely many solutions. Reason (R): The pair of linear equations a_1x + b_1y + c_1 = 0 and a_2x + b_2y + c_2 = 0 have infinitely many solutions, if $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$							
	Questions of 2 Marks each.							
12	The sum of two natural numbers is 240 and their ratio is 3:5. Find the greater number.							
13	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.							
14	Solve 2x – y – 3 = 0, 4 x – y – 5 = 0 by substitution method.							
15	Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36m. Find the dimensions of garden.							
16	In the figure given below, *ABCD* is a rectangle. Find the values of x and y.  							

	Questions of 3 Marks each.
17	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.
18	A part of monthly hostel charges in a college hostel are fixed and the remaining depends on the number of days one has taken food in the mess. When a student A takes food for 25 days, he has to pay ₹4,500, whereas a student B who takes food for 30 days, has to pay ₹ 5,200. Find the fixed charges per month and the cost of food per day.
19	If 2x + y = 23 and 4x – y = 19, find the value of (5y – 2x) and $\left(\frac{y}{x} - 2\right)$
20	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. Find the speed of cars.
21	Solve for x and y: 152x - 378y = -74; -378x + 152y = -604
	Questions of 5 Marks each.
22	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.
23	A fraction becomes $\frac{1}{3}$ when 2 is subtracted from the numerator and it becomes $\frac{1}{2}$ when 1 is subtracted from the denominator. Find the fraction.
	Case Study Based(4 marks)

24	Class X students of a secondary school in Krishnagar have been allotted a rectangular plot of a land for gardening activity. They are asked to find the dimensions of the rectangular plot. To help them find out the dimensions their Mathematics teacher provided them with the following hints The area of the rectangle gets reduced by $9m^2$, if its length is reduced by 5m and breadth is increased by 3m. If we increase the length by 3m and breadth by 2m, the area increases by $67m^2$.  Based on the above situation, answer the following questions: (i) Taking length as x m and breath as y m, find the pair of linear equations representing the above situation. (ii) Check whether the pair of linear equations are consistent/inconsistent. (iii) (a)Find the breadth of the rectangular garden. **OR** (iv) (b)Find the area of the rectangular garden.
25	Teachers and students of class X of a school had gone to Nandan Kannan for study tour. After visiting different places of Nandan Kannan, lastly, they visited bird's sanctuary and deer park. Rohan is a clever boy and keen observer. He put the question to his friends "How many birds are there and how many deer are there (at particular time) in Nandan Kannan?" Rahul's friend, Nishith gave the correct answer as follows: 'Nishith answered that total animals have 1000 eyes and 1400 legs.'  Based on the above situation, answer the following questions: (i)If x and y be the number of birds and deer respectively, what is the equation of total number of eyes? (ii)What is the equation of total number of legs? (iii)(a) How many birds are there in the Zoo? **OR** (b)Find the total number of deers in the Zoo?

	Answers							
Answers	**1**	D	**2**	A	**3**	B	**4**	A
	5	A	**6**	C	**7**	B	**8**	A
	9	B	**10**	C	**11**	d	**12**	150
	14	x=1, y =-1	**15**	16m, 20 m	**16**	x =19m, y = 3m	**17**	36
	18	1000₹, 140₹	**19**	$31, \frac{-5}{7}$	**20**	35 km/hr, 25 km/hr	**21**	x=2, y = 1
	22	x=3, y=2, 7.5 sq. units	**23**	$\frac{7}{15}$	**24**	i) 3x – 5y = 6; 2x + 3y = 6 (ii)consistent (iii) (a)9m (OR) (b)$153m^2$.		
	25	(i) x + y = 500 (ii) x + 2y = 700 (iii)(a) 300 OR (b) 200						