

# INTERNATIONAL INDIAN SCHOOL BURAIDAH

## Worksheet for the Academic Year 2023-24

CLASS:X SUBJECT: MATHEMATICS DATE:10-05-2023

### LESSON:03 - PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

1. If the lines given by  $3x + 2ky = 2$  and  $2x + 5y + 1 = 0$  are parallel, then the value of k is (Ans:  $\frac{15}{4}$ )
2. If  $x = a$  and  $y = b$  is the solution of the equations  $x - y = 2$  and  $x + y = 4$ , then find the value of a & b (Ans:  $a = 3, b = 1$ )
3. The pair of equations  $y = 0$  and  $y = -7$  has ----- solution (Ans: No)
4. For all real values of the pair of equations  $x - 2y = 8$  &  $5x - 10y = c$  have a unique solution. Justify whether it is true or false
5. Find the value of k for which the following pair of linear equations have infinitely many solutions.  $2x + 3y = 7$  &  $(k + 1)x + (2k - 1)y = 4k + 1$
6. If a pair of linear equations is consistent with a unique solution, then the lines representing them are----- (Ans: intersecting)
7. Represent the following pair of linear equations graphically and hence comment on the condition of consistency of this pair.  
 $3x - 4y + 3 = 0$  &  $3x + 4y - 21 = 0$
8. Solve the system of equations graphically:  
 $x - y + 1 = 0$  &  $3x + 2y - 12 = 0$  (Ans:  $x = 2$  &  $y = 3$ )
9. Solve the system of linear equations graphically and shade the region between the two lines and x-axis:  
 $2x + 3y = 12$  &  $x - y = 1$  (Ans:  $x = 3$  &  $y = 2$ )
10. Solve the pair of linear equations by substitution method:
  - a)  $2x + 3y = 9$  &  $3x + 4y = 5$  (Ans:  $x = -21, y = 17$ )
  - b)  $\frac{5}{x+1} - \frac{2}{y-1} = \frac{1}{2}$  &  $\frac{10}{x+1} + \frac{2}{y-1} = \frac{5}{2}$  (Ans:  $x = 4, y = 5$ )
  - c)  $2x + 4y = 10$  &  $2x + y = 4$  (Ans:  $x = 1, y = 2$ )
  - d)  $\frac{4}{x} + 3y = 8$  &  $\frac{6}{x} - 4y = -5$  (Ans:  $x = 2, y = 2$ )
11. Solve the pair of linear equations by elimination method:
  - a)  $3x - 7y + 10 = 0$  &  $y - 2x - 3 = 0$  (Ans:  $x = -1, y = -1$ )
  - b)  $x + 2y = \frac{3}{2}$  &  $2x + y = \frac{3}{2}$  (Ans:  $x = \frac{1}{2}, y = \frac{1}{2}$ )
  - c)  $7(y + 3) - 2(x + 2) = 14$  &  $4(y - 2) + 3(x - 3) = 2$  (Ans:  $x = 5, y = 1$ )
  - d)  $0.4x + 0.3y = 1.7$  &  $0.7x - 0.2y = 0.8$  (Ans:  $x = 2, y = 3$ )
12. Sum of two numbers is 35 and their difference is 13. Find the numbers

(Ans: 24 & 11)

13. The sum of two numbers and the number obtained by reversing the order of its digits is 165. If the digits differ by 3, find the number

(Ans: 69 or 96)

14. A fraction becomes  $\frac{1}{3}$  when 1 is subtracted from the numerator and it becomes  $\frac{1}{4}$  when 8 is added to its denominator. Find the fraction

(Ans:  $\frac{5}{12}$ )

15. The denominator of a fraction is 4 more than twice the numerator. When both the numerator and denominator are decreased by 6, then the denominator becomes 12 times the numerator. Determine the fraction.

(Ans:  $\frac{7}{18}$ )

16. Father's age is three times the sum of ages of his children. After 5 years his age will be twice the sum of ages of two children. Find the age of father

(Ans: 45 years)

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