Pair of Linear Equations in Two Variables

<1M>

1.The solution of the system of equation $\sqrt{2}x+\sqrt{5}y=0$ and $\sqrt{3}x-\sqrt{7}y=0$ is

(A) $x=\sqrt{3}, y=\sqrt{5}$

(B) $x=\sqrt{2}, y=\sqrt{7}$

(C) $x=1, y=\sqrt{2}$

(D) x = 0, y = 0

2.If a pair of values x, y satisfies an equation, then x and y are called _____ of equation.

3.The ratio between a two-digit number and the sum of digits of that number is 4 : 1. If the digit in the unit place is 3 more than the digit in the tenth place, what is that number ?

(A) 63

(B) 36

(C) 24

(D) None of these.

4.If the ratio of boys to girls in a class is B and the ratio of girls to boys is G, then B + G is

(A) greater than 1 or equal to 1

(B) greater than 1

(C) less than 1

(D) equal to 1

5.The income of P and Q are in the ratio 3 : 2 and expenses are in the ratio of 5 : 3. If both saveRs 200, What is the income of P ?

(A) Rs 700

(B) Rs 1000

(C) Rs 1200

(D) None of these.

6.Which of the following system of equations has no solution?

(A) 3x + y = 2, 9x + 3y = 6

(B) 4x - 7y + 28 = 0, 5y - 7x + 9 = 0

(C) 3x - 5y - 11 = 0, 6x - 10y - 7 = 0

(D) None of these.

7.The LCM of two numbers is 630 and their HCF is 9. If the sum of the numbers is 153, their difference is

(A) 72

(B) 27

(C) 81

(D) 18

8.For the equations 5x - 6y = 2 and 10x = 12y + 7

(A) there is no solution

(B) there exists unique solution

(C) there are two solutions

(D) there are infinite number of solutions.

9.

For what value of p does the system of equations 2x - py = 0, 3x + 4y = has nonzero solution?

(A) p = - 6

(B) $p = \frac{-8}{3}$

(C) $p = \frac{-2}{3}$

(D) $p = -\frac{3}{8}$

10.The sum of the digits of a two digits number is 8. If the digits are reversed, the number is decreased by 54. Find the number.

(A) 35

(B) 17

(C) 71

(D) 53.

11.For what value of p will the system of equations 3x + y = 1, (2p - 1)x + (p- 1)y = (2P + 1) has no solution?

(A) p = 2

(B) $p \neq 2$

(C) p = - 2

(D) $p \neq -2$

12.For what value of k, the system of equations x + 2y = 3, 5x + ky + 7 = 0 has unique solution?

(A) k = 10

(B) All real values except 10

(C) All natural numbers except 10

(D) None of these.

13.For what value of k, the system of equations kx - y = 2, 6x - 2y = 3 has infinitely many solutions?

(A) k = 3

(B) $k \neq 4$

(C) k = 6

(D) Does not exist.

14.For what values of a and b will the equations 2x + 3y = 7, (a - b)x + (a + b)y = (3a + b - 2) represent coincident lines?

(A) a = 5, b = - 1

(B) a = 5, b = 1

(C) a = -5, b = - 1

(D) a = 5, b = - 1

15.Divide 62 into two parts such that fourth part of the first and two-fifth part of the second are in the ratio 2 : 3.

(A) 24, 38

(B) 32, 30

(C) 16, 32

(D) 40, 22

16.37 pens and 53 pencils together cost Rs320, while 53 pens and 37 pencils together cost Rs400. Find the cost of pen and that of a pencil

(A) 6.50, 1.50

(B) 2.50, 1.00

(C) 4.50, 1.50

(D) 6.50, 2.50

17.Solve the following system of linear equation

2(ax - by) + (a + 4b) = 0

2(bx + ay) + (b - 4a) = 0

(A) x = 1, y = 2

(B) x = -1/2, y = 2

(C) x = 1/2 , y = -2

(D) None of these

18.If $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$, Then $a_1x+b_1y+c_1=0 \& a_2x+b_2y+c_2=0$ will represent _____line

19.The solution of the system of equations 2x -3y+4xy = 0 and 6x + 5y - 2xy = 0 is

(A) x = 0, y = 0

(B) x = 1, y = -2

(C) Both 'a' and 'b'

(D) None of these.

20.Which of the following system of equations is consistent?

(A) 3x - y = 1, 6x - 2y = 5

(B) 4x + 6y - 7 = 0, 12x + 18y - 21 = 0

(C) 4x + 7y = 3, 8x + 14 y = 7

(D) 6x + 2y = 3, 5x + 6y = - 2.

21.The coordinates of the point where the line 2(x - 3) = y - 8 meet the x-axis is

(A) (3, 0)

(B) (2, 0)

(C) (-1, 0)

(D) (0, -1)

22.The coordinates of the points where the lines 3x - y = 5, 6x - y = 10 meet the y-axis are

(A) (0, -5), (0, -10)

(B) (-5, 0), (10, 0)

(C) (5, 0), (0, -10)

(D) (0, -5), (0, -10)

23.Which of the following system of equations has infinitely many solutions?

(A) $5x-4y=20, 7.5x-6y=0$

(B) $2x-3y=5, 3x-4.5y=7.5$

(C) $x+5y-3=0, 3x+15y-9=0$

(D) All of these.

24.A system of simultaneous linear equation is said to be consistent, if it has _____ solution.

25.If $\frac{x}{b}=\frac{y}{a}, bx+ay=a^2+b^2,$ then the values of (x, y) are

(A) (a, b)

(B) (-a, -b)

(C) (b, -a)

(D) (b, a).

26.A system of simultaneous linear equation is said to be _____ if it has no solution.

27.The coordinates of the points where the lines 5x - y = 7, 10x + y = 15 meet the y-axis

(A) (0, -7), (0, 15)
(B) (-7, 0), (15, 0)
(C) (7, 0), (0, -15)
(D) (0, -7), (0, -15)

28.If $a_1x+b_1y+c_1=0 \& a_2x+b_2y+c_2=0$ then what will be the condition of consistency of infinite many solution ?

29.If $\frac{a_1}{a_2}=\frac{b_1}{b_2}\neq\frac{c_1}{c_2}$ then what will be the condition of $a_1x+b_1y+c_1=0 \& a_2x+b_2y+c_2=0$?

30.Sum of two numbers in 48 and their difference is 20. Find the numbers.

31.If the difference of two numbers is 26 and one number is three times the other, find the numbers.

32.The sum of two numbers is 128 and their difference is 16. Find the number
(A) 70 , 52
(B) 72, 56
(C) 70 , 56
(D) 72 , 52

33.The solution of the system of equations 2x + 3y + 5 = 0 and 3x - 2y - 12 = 0 is _____
(A) x = - 3, y = - 2
(B) x = 2, y = - 3
(C) x = 3, y = - 2
(D) x = 12, y = 13

34.The solution of the system of equations $\frac{2x+5y}{xy}=6$ and $\frac{4x-5y}{xy}+3=0$ (where $x \neq 0, y\neq 0$) is
(A) x = 1, y = 2
(B) x = 0, y = 0
(C) x = - 1, y = 2
(D) x = 1, y = -2

35.Solve for x and y :
47x + 31y = 63
31x + 47y = 15
(A) x = -2, y = 1
(B) x = 2, y = -1
(C) x = 2, y = 1
(D) None of these

36.Solve (2u + v) = 7uv
3(u + 3v) = 11uv
(A) u = 0, v = 0
(B) u = 1, v = 3/2
(C) Both of these
(D) None of these

37.Solve:
x + 2y + z = 7
x + 3z = 11
2x - 3y = 1
(A) x = 1, y = 2, z = -1

(B) x = 2, y = 1,z = 3
(C) x = -1, y = -2, z = 1
(D) x = 3, y = 1, z= - 2

38.Solve x + y + 2z = 9
2x - y + 2z = 6
3x + y + 4z = 17
(A) x = 0,y = 1,z = 2
(B) x = -1,y = -2,z = -3
(C) x =1,y= 2, z = 3
(D) None of these

39.For what value of k, will the following system of equations x + 2y + 7 = 0, 2x + ky + 14 = 0 represent coincident lines
(A) 2
(B) 3
(C) 4
(D) 5

40.Solve: $4x + \frac{6}{y} = 15$

$6x - \frac{8}{y} = 14$

and hence, find 'p' if y = px - 2.

(A) $\frac{3}{4}$
(B) 1
(C) 0
(D) $\frac{4}{3}$

41.Show that the following system of equations has unique.solution
2x - 3y = 6
x + y = 1
(A) Unique solution
(B) No solution
(C) Infinite
(D) None of these

42.For what value of k the following system of equations has a unique solution:
x - ky = 2
3x + 2y = -5
(A) $k \neq \frac{-2}{5}$
(B) $k \neq \frac{-1}{3}$
(C) $k \neq \frac{-2}{3}$
(D) None of these

43.Solve 2x + 3y = 11 and 2x - 4y = -24 and hence find the value of 'm' for which y = mx + 3
(A) 1
(B) 2

(C) -2
(D) -1

44.The coordinates of the point where the line 5(x - 4) = 2y - 25 meet the x-axis
(A) (4, 0)
(B) (5, 0)
(C) (-1, 0)
(D) (0, -1)

45.The taxi charges in a city comprise of a fixed charge together with the charge for the distance covered. For a journey of 10 km the charge paid is Rs75 and for a journey of 15 km the charge paid is Rs110. What will a person have to pay for traveling a distance of 25 km.
(A) 220
(B) 240
(C) 200
(D) 180

46.Solve the following system by the method of elimination(substitution)
2x - y = 5
3x + 2y = 5
(A) x = 2, y = 1
(B) x = 1, y = 1
(C) x = 3, y = 1
(D) None of these

47.What number must be added to each of the number 5,9,17,27 to make the numbers in proportion?
(A) 4
(B) 5
(C) 6
(D) 3

48.The difference between two numbers is 26 and one number isthree times the other. Find them.
(A) 30, 13
(B) 35, 12
(C) 39, 31
(D) 39, 13

49.Find the value of k for which the following syatem of equation has no solutions:
2x + ky = 1; 3x - 5y = 7
(A) 0
(B) $\frac{10}{3}$
(C) $-\frac{10}{3}$
(D) 1

50.For what value of k the following equations are inconsistent?
x - 4y = 6, 3x + ky = 5
(A)10
(B)12
(C)-12
(D)-10

51.The ratio of two persons is 9:7 and the ratio of their expenditure is 4:3. If each of them saves Rs 200 per month, find their monthly incomes

(A) 1000,800
(B) 1800,1400
(C) 1600,1200
(D) 1600,1400

52.Solve the following system of equation by the method of cross-multiplication. 11x + 15y = -23
7x - 2y = 20
(A) x = 2, y = 2
(B) x = 3, y = -3
(C) x = 2, y = -3
(D) None of these

53.Solve the following system of linear equation by using the method of elimination by equating the coefficients.

$\sqrt{3}x-\sqrt{2}y=\sqrt{3}$

$\sqrt{5}x+\sqrt{3}y=\sqrt{2}$

(A) x = $5(\sqrt{10}-3), y=5\sqrt{15}-8\sqrt{6}$
(B) x = 5, y = 5
(C) $x=5(\sqrt{10}+3), y=5(\sqrt{15}+8\sqrt{6})$
(D) The given equations are

$\sqrt{3}x-\sqrt{2}y=\sqrt{3}$

$\sqrt{5}x+\sqrt{3}y=\sqrt{2}$

54.For what value of p does the system of equations 4x - py = 0, 5x + 6y = 0 has nonzero solution?
(A) p = - 8
(B) $p=\frac{-24}{5}$
(C) $p=\frac{-5}{6}$
(D) $p=-\frac{3}{8}$

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55.
(a) Solve:

$217x+131y=913$ ..(i)

$131x+217y=827$ ..(ii)

(b) For what value of u the system of Equation

$3x+5y=0$

$ux+10y=0$ has unique solution

<6M>
56.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?

57.Solve:

$ax+by=a-b$

$bx-ay=a+b$

By cross multiplication method.

58.A man has only 20 paise and 25 paise coins in his purse. If he has 50 coins in all totaling Rs 11.25 How many coins of each does he have?

59.On selling a tea set at 5% loss and a lemon set at 15% gain, a crockery seller gained Rs. 7.0 If he sells the tea set at 5% gain and the lemon set at 10% gain, the gain isRs 13. Find the actual price of the tea set and the lemon set.

60.A boat goes 30km upstream and 44km downstream is 10hrs. In 13 hrs it go 40km upstream and 55 km downstream. Determine the speed of the stream and that of boat in still water.

61.

(a) Use elimination method to find all possible solutions of the following pair of equations.

$2x+3y=8$

$4x+6y=7$

(b) Determine the value on of ' u ' so that the following equations have no solutions.

$(3u+1)x+3y-2=0$

$(u^2+1)x+(u-2)y-5=0$

62.a) The taxi charges in a city comprise of a fixed charge together with the charge for the distance covered. For a journey for 10km the charge paid is Rs 75 and for a journey of 15km the charge paid Rs 110. What will a person have to pay for traveling a distance of 25km.

(b) In $\Delta ABC,\ \angle C=3\angle B=2(\angle A+\angle B).$ Find the three angles.

63.Solve the given Equation by using the method of substitution.

$2x+3y=9$

$3x+4y=5$

64.

Solve: $\frac{1}{2x}-\frac{1}{y}=-1$

$\frac{1}{x}+\frac{1}{2y}=8$

65.

Solve by cross multiplication, the following system of Equation:

$x+y=7$

$5x+12y=7$

66.

Solve the following system of Equation -

$8x-3y=5xy$

$6x-5y=2xy$

67.a) For what value of $'u'$ will the following pair of Equation have infinitely many solutions.

$ux+3y-(u-3)=0$

$12x+uy-u=0$

(b) For what value of p does the pair of Equations given below has uniquesolution?

$4x+py+8=0$

$2x+2y+2=0$

68.A man sold a chair and a table together for Rs 1520 .There is a profit of 25% on the chair and 10% on table. By selling them together for Rs 1535, he could have made a profit of 10% on the chair and 25% on the table. Find the cost price of each.

69.Solve the given Equation by using the method of elimination by the coefficients:

$$\frac{x}{10}+\frac{y}{5}+1=15$$

$$\frac{x}{8}+\frac{y}{6}=15$$