

Linear equation in two variables Revision Sheet.

7. Solve graphically the pair of equations:

$$2x + y = 6$$

$$2x - y + 2 = 0.$$

8. Solve the following system of equations graphically and from the graph, find the points where these lines intersect the y -axis:

$$x - 2y = 2,$$

$$3x + 5y = 17.$$

9. Solve the following system of equations graphically and find the vertices of the triangle formed by these lines and the x -axis:

$$4x - 3y + 4 = 0,$$

$$4x + 3y - 20 = 0.$$

10. Solve graphically:

$$x - y = 1$$

$$2x + y = 8.$$

Shade the region bounded by these lines and y -axis. Also find its area.

11. Draw the graph of the equations $x = 5$, $y = -4$. Also find area of rectangle so formed by these lines x -axis and y -axis.

LEVEL-2

12. If $2x - 3y = 7$ and $(a + b)x - (a + b - 3)y = 4a + b$ have infinite solution, find a, b Ans. $(-5, 1)$

13. Solve: $\frac{x}{a} + \frac{y}{b} = 2$

$ax - by = a^2 - b^2.$ (Ans: $x = a, y = b$)

14. Solve: $23x + 29y = 98$

$29x + 23y = 110.$

(Ans. $x = 3, y = 1$).

15. Solve: $152x - 378y = -74$

$-378x + 152y = -604$

16. The sum of the digits of a two digit number is 12. The number obtained by interchanging the two digits exceeds the given number by 18. Find the number.
(Ans: 57)

17. The monthly incomes of A and B are in the ratio of 5 : 4 and their monthly expenditures are in the ratio of 7 : 5. If each saves Rs. 3000 per month, find the monthly income of each.
(Ans: Rs. 10000, Rs. 8000)

18. A part of monthly hostel charges is fixed and the remaining depends on the number of days one has taken food in the mess. When a student A takes food for 20 days, she has to pay Rs. 1000 as hostel charges whereas a student B , who takes food 26 days, pays Rs 1180 as hostel charges. Find the fixed charges and the cost of the food per day.
(Ans: $x = \text{Rs. } 400, y = \text{Rs } 30$.)

19. Father's age is 3 times the sum of ages of his two children. After 5 years his age will be twice the sum of ages of the two children. Find the age of father
(Ans: 45)

20. Two numbers are in the ratio 5 : 6. If 8 is subtracted from each of the numbers, the ratio becomes 4 : 5. Find the numbers.
(Ans: 40, 48)

21. If 4 times the area of a smaller square is subtracted from the area of a larger square, the result is 144 m². The sum of the areas of the two squares is 464 m². Determine the sides of the two squares

(Ans: Side=8m)

LEVEL-3

22. Solve:

$$\frac{x+1}{2} + \frac{y-1}{3} = 8$$

$$\frac{x-1}{3} + \frac{y+1}{2} = 9 \quad (\text{Ans: } x=7, y=13)$$

23. Solve:

$$\frac{2}{x-1} + \frac{3}{y+1} = 2$$

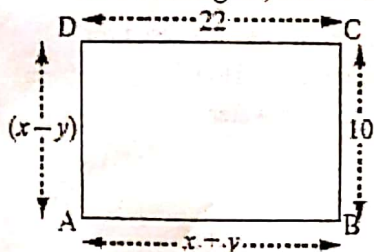
$$\frac{3}{x-1} + \frac{2}{y+1} = \frac{13}{6} \quad (\text{Ans: } x=3, y=2)$$

24. Solve:

$$\frac{7x-2y}{xy} = 5$$

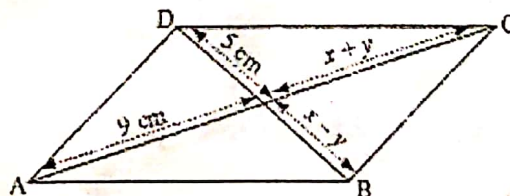
$$\frac{8x+7y}{xy} = 15 \quad (\text{Ans: } x=1, y=1)$$

25. In the figure, ABCD is a rectangle. Find the values of x and y .



(Ans: $x=16, y=6$)

26. In the figure, ABCD is a parallelogram. Find the values of x and y .



(Ans: $x=7, y=2$)

27. The taxi charges in a city consists of a fixed charge together with the charge for the distance covered. For a distance of 10 km, the charge paid is Rs. 105 and for journey of 15 km the charge paid is Rs. 155. What are the fixed charges and the charges per km?

(Ans: Fixed charge=Rs.5, Charge per km=Rs.10)

28. Nine times a two-digit number is the same as twice the number obtained by interchanging the digits of the number. If one digit of the number exceeds the other number by 7, find the number.

(Ans: no.=18)

29. A man travels 370 km partly by train and partly by car. If he covers 250 km by train and rest by car, it takes him 4 hours. But if he travels 130 km by train and rest by car, he takes 18 minutes longer. Find the speed of the train and that of the car.

(Ans: speed of the train=100km/hr, speed of the car=80km/hr)

30. A boat goes 12 km upstream and 40 km downstream in 8 hours. It goes 16 km upstream and 32 km downstream in the same time. Find the speed of the boat in still water and the speed of the stream.

(Ans: 6km/hr, 2km/hr)

VALUE BASED QUESTIONS

1. A boat goes 30 km upstream and 44 km downstream in 10 hrs. In 13 hours it can go 40km upstream and 55 km downstream. Determine the speed of the stream and that of the boat. What value to be learnt in real life from this problem?
2. A class of 20 boys and 15 girls is divided into groups so that each group has x boys and y girls. Find x , y and what values are referred in a class.
3. 2 men and 5 women can together finish a piece of work in 4 days, while 3 men and 6 women can finish it in 3 days. Find the time taken by 1 man alone to finish the work, and also that taken by 1 woman alone. Write one benefit of gender equality.
4. A person invested some amount @ 12% simple interest and some other amount @ 10% simple interest. He received a yearly interest of Rs. 13000. But if he had interchanged the invested amounts, he would have received Rs. 400 more as interest. How much amount did he invest at different rates? Mention any one advantage of savings for a country.
5. It takes 12 hours to fill a swimming pool using two pipes. If the pipe of larger diameter is used for 4 hours and the pipe of smaller diameter for 9 hours, only half the pool can be filled. How long would it take for each pipe to fill the pool separately? Suggest one method to save water.