

1.Linear Equations in Two Variables

◆ A. Solve Algebraically (Substitution / Elimination)

Q1. Solve:

$$3x+4y=10, \quad 2x-y=1$$

Q2. Solve:

$$x+y=5, \quad 2x-3y=4$$

Q3. Solve:

$$5x-2y=8, \quad 4x+y=7$$

Q4. Solve:

$$6x-5y=-4, \quad 3x+2y=20$$

Q5. Solve:

$$x/3 + y/2 = 4, \quad x/2 - y/4 = 1$$

◆ B. Word Problems (Form and Solve Equations)

Q6. The sum of two numbers is 20. Their difference is 4. Find the numbers.

Q7. A shopkeeper sells 2 pencils and 3 pens for ₹22. He sells 4 pencils and 1 pen for ₹18. Find the cost of each pencil and pen.

Q8. A person travels 300 km in 5 hours. He travels part by train at 60 km/h and the rest by car at 40 km/h. Find the distance covered by train and by car.

Q9. The sum of the digits of a two-digit number is 7. If the digits are reversed, the number increases by 27. Find the original number.

Q10. The difference between two numbers is 6. Four times the smaller number is equal to three times the larger. Find the numbers.

◆ C. Consistency and Number of Solutions

Q11. Check whether the system has a unique solution, no solution, or infinitely many solutions:

$$2x+3y=6, \quad 4x+6y=12$$

Q12. Find the value of k for which the system:

$$x+2y=3, \quad kx+4y=6$$

has **infinitely many solutions**.

◆ D. Graphical Method

Q13. Draw the graphs of the equations:

$$x+y=5 \text{ and } x-y=1$$

Find the point of intersection and verify the solution.

Q14. Plot and solve graphically:

$$2x+3y=12, \quad x-y=1$$

◆ E. Applications & Real-Life

Q15. Ramesh has ₹100 in ₹10 and ₹5 coins. He has a total of 12 coins. Find how many of each type he has.

Q16. A boat covers 20 km downstream in 2 hours and returns the same distance upstream in 4 hours. Find the speed of the boat and the stream.

Q17. The perimeter of a rectangle is 50 cm. The length is 5 cm more than the breadth. Find the dimensions.

Q18. A man bought 5 apples and 4 oranges for ₹60. Another man bought 3 apples and 6 oranges for ₹54. Find the cost of one apple and one orange.

Q19. The ages of two friends are in the ratio 5:7. Four years later, the sum of their ages will be 44. Find their present ages.

Q20. The denominator of a fraction is 3 more than the numerator. If 1 is added to both, the new fraction becomes $\frac{3}{4}$. Find the original fraction.