ILLAWARRA TUTORING

In this worksheet you will learn to solve systems of equations with two variables by applying effective methods. Read each question carefully and show all your workings.

Easy Questions

1. Solve the following simultaneous equations:
$$x + y = 5, \quad x - y = 1.$$

2. Solve for x and y:
$$2x + y = 7, \quad x - y = 1.$$

3. Solve the system by substitution:
$$x = 3 - y, \quad 2x + y = 4.$$

4. Given that
$$x = 2 \quad \text{and} \quad 3x + 2y = 12,$$
find the value of y.

5. Solve the system:
$$y = x + 1, \quad 2x + y = 9.$$

Intermediate Questions

6. Solve:
$$3x + 2y = 16, \quad x - y = 2.$$

7. Solve the equations:
$$4x - y = 11, \quad 2x + 3y = 13.$$

8. Find the solution for:
$$5x + 4y = 20, \quad 3x - 2y = 4.$$

9. Determine x and y from:
$$2x + 5y = 1, \quad 3x - y = 8.$$

10. Solve the simultaneous equations:
$$x + 2y = 7, \quad 2x - y = 4.$$

11. Solve:
$$3x - y = 5, \quad x + y = 7.$$

12. Solve for x and y:
$$2x + 3y = 12, \quad 4x - y = 10.$$

13. Solve using substitution:
$$y = 2x - 3, \quad 3x + y = 9.$$

14. Find the solution of:
$$2(x + y) = 14, \quad x - y = 2.$$

15. Solve:
$$3(x - y) = 9, \quad 2x + y = 8.$$

16. The sum of two numbers is 12 and their difference is 4. Find the numbers.
$$x + y = 12, \quad x - y = 4.$$

17. Two types of fruit are sold. Two apples and three bananas cost 10 and three apples and two bananas cost 11. Find the cost of one apple and one banana.

18. Solve the system:
$$\frac{x}{2} + \frac{y}{3} = 5, \quad \frac{x}{3} - \frac{y}{2} = 1.$$

19. Determine x and y in:
$$7x + 2y = 1, \quad 5x - 3y = -9.$$

20. Solve:
$$4x + 5y = 29, \quad 2x - 5y = -1.$$

Hard Questions

21. Solve the simultaneous equations:
$$6x + 5y = 1, \quad 7x - 3y = 11.$$

22. Find x and y satisfying:
$$3x + 4y = 10, \quad 5x - 6y = -2.$$

23. The sum of two numbers is equal to twice their difference. In addition, five times the smaller number plus three times the larger equals 34. Determine the two numbers.

24. Solve:
$$2(x + y) = x - y + 10, \quad 3(x - y) = x + y + 1.$$

25. Solve the simultaneous equations:

$$\frac{5}{2}x - \frac{3}{4}y = 7, \quad \frac{3}{2}x + \frac{1}{4}y = 2.$$

26. Find the values of x and y satisfying:

$$2(x + 2y) = 3(x - y) + 4.$$

27. Solve the system:

$$\frac{2x - y}{3} = \frac{x + y - 1}{2}, \quad 4x + 5y = 23.$$

28. A rectangle has a perimeter of 30 centimetres and its length is 4 centimetres more than its width. Find its dimensions.

29. Solve:

$$\frac{x + y}{2} = 4, \quad \frac{x - y}{3} = 1.$$

30. Find x and y satisfying:

$$8x - 3y = 14, \quad 5x + 2y = 9.$$