ILLAWARRA TUTORING

In this worksheet you will learn to apply substitution and elimination techniques to solve systems of linear equations. Work carefully through each question, showing all your working.

Easy Questions

1. Solve the system: $2x + y = 5$ and $x - y = 1$.
2. Solve the system: $x + y = 8$ and $x - y = 2$.
3. Solve the system: $3x + 2y = 12$ and $x - y = 2$.
4. Solve the system: $2x - y = 4$ and $x + 2y = 7$.
5. Solve the system: $x + 2y = 10$ and $2x + y = 11$.

Intermediate Questions

6. Solve the system: $2x + 3y = 12$ and $x - y = -1$.
7. Solve the system: $4x - y = 3$ and $3x + 2y = 14$.
8. Solve the system: $x + y = 3$ and $2x + 5y = 12$.
9. Solve the system: $3x - y = 2$ and $2x + y = 10$.
10. Solve the system: $5x + 2y = 3$ and $-x + 3y = 7$.
11. Solve the system: $3x + 4y = 10$ and $2x - y = 1$.
12. Solve the system: $2x + 5y = 13$ and $3x - y = 2$.
13. Solve the system: $x - 2y = -1$ and $3x + y = 11$.
14. Solve the system: $4x + y = 9$ and $-2x + 3y = 4$.
15. Solve the system: $5x - 3y = 1$ and $2x + 4y = 20$.
16. Solve the system: $3x + 2y = 7$ and $4x - y = 5$.
17. Solve the system: $7x + y = 15$ and $2x - 3y = -1$.
18. Solve the system: $x + y = 12$ and $3x + 4y = 32$.
19. Solve the system: $2x - 4y = 6$ and $3x + y = 10$.
20. Solve the system: $4x - y = 7$ and $x + 3y = 4$.

Hard Questions

21. The sum of two numbers is 15 and three times the first number is 5 more than twice the second. Let the numbers be x and y. Form and solve the system.

22. Solve the system: $5(x + 2y) = 25$ and $3(2x - y) = 9$. Begin by expanding the brackets.

23. Solve the system: $7(x - y) = 21$ and $4(2x + y) = 32$. Expand the brackets before solving.

24. Solve the system: $\frac{1}{2}x + y = 4$ and $x - \frac{1}{3}y = 2$. Eliminate the fractions before proceeding.

25. Solve the system: $\frac{3}{4}x + \frac{1}{2}y = 5$ and $\frac{2}{3}x - y = 1$. Begin by clearing the fractions.

26. Solve the system: $2(x + y) = 14$ and $3(2x - y) = 9$. Expand the brackets and then solve.

27. Solve the system: $\frac{x}{2} + \frac{y}{3} = 3$ and $\frac{x}{3} - \frac{y}{2} = -1$. Clear the denominators before solving.

28. Solve the system: $2(x + 3y) = 20$ and $3(x - y) = 6$. Expand the brackets then use substitution.

29. Solve the system: $2x - 3y = -1$ and $4x + y = 9$. Use the elimination method.

30. The sum of twice a number and three times another number is 16, and their difference is 2. Let the numbers be x and y, where $2x + 3y = 16$ and $x - y = 2$. Form and solve the system.