



This worksheet will expand your skills to solve systems that include at least one non-linear equation. You will encounter systems which combine quadratic or multiplicative relationships with linear equations. Read each question carefully and follow the instructions provided.

Easy Questions

1. Solve the system $y = x^2$ and $y = 4$.
2. Solve the system $x = y^2$ and $y = 3$.
3. Solve the system $x^2 + y^2 = 25$ and $y = 0$.
4. Solve the system $x^2 = y + 1$ and $y = 3$.
5. Solve the system $y = x^2 - 1$ and $y = 3$.

Intermediate Questions

6. Solve the system $x^2 + y^2 = 25$ and $x + y = 7$.
7. Solve the system $y = 2x^2$ and $x + y = 6$.
8. Solve the system $x^2 - y = 1$ and $x + y = 3$.
9. Solve the system $y = x^2 - 4x + 3$ and $y = x + 2$.
10. Solve the system $x^2 = y + 2$ and $y = x - 1$.
11. Solve the system $x^2 + y^2 = 10$ and $y = x$.
12. Solve the system $y = 1 - x^2$ and $y = 2x + 3$.
13. Solve the system $x^2 = y + 4$ and $y = -x$.
14. Solve the system $x^2 - 4y = 0$ and $y = x + 2$.
15. Solve the system $y = x^2 + 2x$ and $x^2 - y = 4$.
16. Solve the system $xy = 4$ and $x + y = 5$.
17. Solve the system $x^2y = 8$ and $x = 2$.
18. Solve the system $x^2 + y^2 = 20$ and $x - y = 2$.

19. Solve the system $y = x^2 + 1$ and $2x^2 - y = 3$.

20. Solve the system $y = x^2 - 2x + 1$ and $y = 3 - x$.

Hard Questions

21. Solve the system $x^2 + y^2 = 25$ and $xy = 12$.

22. Solve the system $x^2 - y^2 = 5$ and $xy = 6$.

23. Solve the system $x^2 + y = 4$ and $y^2 + x = 4$.

24. Solve the system $x^2 + y^2 = 2x + 2y$ and $xy = 1$.

25. Solve the system $x^2 = 4y$ and $y^2 = 4x$.

26. Solve the system $x^2 + 2xy + y^2 = 9$ and $x - y = 1$.

27. Solve the system $x^2y + y = 10$ and $x + y = 4$.

28. Solve the system $x^2 + y^2 = 10$ and $x^3 = y + 6$.

29. Solve the system $xy = 2$ and $x^2 + y^2 = 10$.

30. Solve the system $x^2 + y = 3$ and $y^2 - x = 1$.