



In this worksheet you will combine various factorisation methods to simplify even the most complex expressions. You are expected to use techniques such as extracting the greatest common factor, recognising special products including differences of squares and perfect squares, and factorisation by grouping. Work carefully through each question.

Easy Questions

1. Factorise $2x^2 - 18$.
2. Factorise $3x^2 + 12x$.
3. Factorise $4x^2 + 4x + 1$.
4. Factorise $x^2 - 16$.
5. Factorise $5x^2 - 20$.

Intermediate Questions

6. Factorise $3x^3 + 6x^2 - x - 2$.
7. Factorise $2x^3 - 8x$.
8. Factorise $4x^2y + 8xy^2 + 4xy$.
9. Factorise $x^3 + 2x^2 - x - 2$.
10. Factorise $6x^2 - 150$.
11. Factorise $8x^2 + 2x - 15$.
12. Factorise $9x^2 - 24xy + 16y^2$.
13. Factorise $2x^3 - 5x^2 - 4x + 10$.
14. Factorise $4x^4 - 16x^2$.
15. Factorise $6x^3 + 3x^2 - 2x - 1$.
16. Factorise $(2x^2 + 3x - 5) + (4x^2 - 7x + 3)$.
17. Factorise $x^3 - 7x + 6$.
18. Factorise $10x^2 + 7x - 12$.

19. Factorise $12x^2 - 8xy - 9x + 6y$.

20. Factorise $2x^2 + 3xy - x - 3y$.

Hard Questions

21. Factorise $6x^4 - 24x^3 + 18x^2$.

22. Factorise $4x^4 - 25y^4$.

23. Factorise $3x^3 + x^2 - 12x - 4$.

24. Factorise $8x^3 - 27$.

25. Factorise $4x^3 + 8x^2 - 3x - 6$.

26. Factorise $9x^4 - 16$.

27. Factorise $2x^3 + 5x^2 - 8x - 20$.

28. Factorise $7x^4 - 28x^3 + 28x^2$.

29. Factorise $4x^4 + 12x^3 + 9x^2$.

30. Factorise $x^4 - 5x^2 + 4$.