

Factorisation

Chapter 5: Factorisation · Topic 1

Key Concept

The common factor method finds the greatest common factor of all terms and factors it out, like $4x+8 = 4(x+2)$.

Factorisation using identities recognises patterns, like a^2-b^2 factoring to $(a+b)(a-b)$, or $a^2+2ab+b^2$ factoring to $(a+b)^2$.

Factorisation by grouping involves grouping terms to find common factors, useful for expressions with four or more terms.

Trinomial factorisation, like $x^2+7x+12$, finds two numbers that multiply to 12 and add to 7, giving $(x+3)(x+4)$.

Quick Revision Notes

- Common factor method factors out the GCF.
- $4x+8 = 4(x+2)$.
- Identities help factorise, like $a^2-b^2=(a+b)(a-b)$.
- $a^2+2ab+b^2$ factors to $(a+b)^2$.
- Grouping factors expressions with 4+ terms.
- Trinomials factor by finding matching numbers.
- $x^2+7x+12 = (x+3)(x+4)$, since $3 \times 4 = 12$, $3+4=7$.
- Different methods suit different expressions.

Practice Questions

- 1 Factorise $6x+15$.
- 2 Factorise x^2-16 using an identity.
- 3 Factorise $x^2+9x+20$.
- 4 Discuss factorisation by grouping with an example.
- 5 Solve two factorisation problems.
- 6 Explain why factorisation helps solve equations.