Factorising into Single Brackets

Mathematicards *Grade 4–6*

PRO TIP: Highest Common Factor

Factorising is the inverse of expanding. Look for the **Highest Common Factor (HCF)** of all terms and place it outside the bracket.

- $6x + 9 = 3(2x + 3)$
- Check your answer by expanding the bracket back out!

Section 1: The Essentials (Grade 4–5)

Factorise these expressions completely by finding the common numerical factor.

1. $2x + 10$
2. $5y - 15$
3. $12a + 8$
4. $21b - 14$
5. $10x + 25$
6. $18y - 27$
7. $4a + 20$
8. $30b - 45$

KEY PATTERN: Algebraic Factors

Don't forget to look for letters that are common to all terms. If x appears in every term, it must go outside the bracket.

- $x^2 + 5x = x(x + 5)$
- $6x^2 - 4x = 2x(3x - 2)$

Section 2: More Challenging (Grade 5–6)

Factorise fully. These involve both numbers and letters.

9. $x^2 + 7x$
10. $y^2 - 4y$
11. $3a^2 + 6a$
12. $5b^2 - 10b$
13. $8x^2 + 12x$
14. $15y^2 - 10y$
15. $x^2y + xy^2$
16. $4ab - 6ac$

Section 3: Challenge Problems

17. Factorise completely: $12x^3 - 18x^2$
18. Factorise fully: $4\pi r^2 + 2\pi rh$
19. Factorise: $10a^2b - 15ab^2 + 5ab$
20. The area of a rectangle is given by $6x^2 + 15x$. Find the width if the length is $3x$.