GRADE 10 · ALGEBRAIC EXPRESSIONS

Factorising: Trinomials, Grouping in Pairs & the Cubes (Grade 10)

MEMORANDUM

Name: ..... Class: .....

Date: .....

MARK ____ / 25

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

1 Factorise: $3x^2 - 12$ (2)

$3(x^2 - 4) = \mathbf{3(x - 2)(x + 2)}$ ✓✓ (2)

2 Factorise: $x^3 + 3x^2 + 2x + 6$ (3)

$x^2(x + 3) + 2(x + 3) = \mathbf{(x + 3)(x^2 + 2)}$ ✓✓✓ (3)

3 Factorise: $ax + ay + bx + by$ (2)

$a(x + y) + b(x + y) = \mathbf{(x + y)(a + b)}$ ✓✓ (2)

4 Factorise: $x^3 + 27$ (2)

$\mathbf{(x + 3)(x^2 - 3x + 9)}$ ✓✓ (2)

5 Factorise: $x^3 - 64$ (2)

$\mathbf{(x - 4)(x^2 + 4x + 16)}$ ✓✓ (2)

6 Factorise: $8x^3 - 1$ (3)

$\mathbf{(2x - 1)(4x^2 + 2x + 1)}$ ✓✓✓ (3)

7 Factorise: $27x^3 + 8$ (3)

$\mathbf{(3x + 2)(9x^2 - 6x + 4)}$ ✓✓✓ (3)

8 Factorise: $x^2 - 7x + 12$ (2)

$\mathbf{(x - 3)(x - 4)}$ ✓✓ (2)

9 Factorise: $2x^2 + 7x + 3$ (3)

$a \times c = 6$; 6 and 1; $2x^2 + 6x + x + 3 = 2x(x + 3) + 1(x + 3) = \mathbf{(2x + 1)(x + 3)}$ ✓✓✓ (3)

10 Factorise: $2x^2 - 5x - 3$ **(3)**

$a \times c = -6$; -6 and $+1$; $2x^2 - 6x + x - 3 = 2x(x-3) + 1(x-3) =$ $\mathbf{(2x+1)(x-3)}$ ✓✓✓ (3)

TOTAL: 25 marks

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