Marked example 1

Paper 1 style · No calculator

1 6 marks SL 5.5 · 5.10 ●○○ Routine

The gradient of a curve $y = f(x)$ is given by $f'(x) = 4x^3 - 6x + 2$. The curve passes through the point $(2, 9)$.

(a) Find $f(x)$. **[5]**

(b) Find $f(-1)$. **[1]**

MARKSCHEME (a)

$f(x) = x^4 - 3x^2 + 2x + c$ **A1A1**

$2^4 - 3 \times 2^2 + 2 \times 2 + c = 9$ **M1**

$16 - 12 + 4 + c = 9,\ c = 1$ **A1**

$f(x) = x^4 - 3x^2 + 2x + 1$ **A1**

Total 5 marks

Note A1 for two correct terms, A1 for all three. The point goes into f, never into f': $4 \times 8 - 12 + 2 = 22 \neq 9$ is a sign of that confusion.

MARKSCHEME (b)

$f(-1) = 1 - 3 - 2 + 1 = -3$ **A1**

Total 1 mark

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