Exercise 1

Paper 1 style · No calculator

1 5 marks SL 5.5 · 5.10 ●○○ Routine

The gradient of a curve $y = f(x)$ is given by $f'(x) = 3x^2 - 8x + 5$. The curve passes through the point $(2, 7)$.

(a) Find $f(x)$. **[4]**

(b) Write down the y-intercept of the curve. **[1]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

$f(x) = x^3 - 4x^2 + 5x + c$ **A1A1**

$8 - 16 + 10 + c = 7$ **M1**

$c = 5$: $f(x) = x^3 - 4x^2 + 5x + 5$ **A1**

Total 4 marks

Note A1 for two correct terms, A1 for all three.

MARKSCHEME (b)

5 (or $(0, 5)$) **A1**

Total 1 mark