Exercise 2

Paper 1 style · No calculator

2 5 marks SL 5.10 ●○○ Routine

Find the following integrals.

(a) $\int \left(6\sqrt{x} - \frac{2}{x^3}\right) \mathrm{d}x, \text{ for } x > 0$ **[3]**

(b) $\int 3\cos(3x+1)\,\mathrm{d}x$ **[2]**

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)

$\int \left(6x^{\frac{1}{2}} - 2x^{-3}\right) \mathrm{d}x$ **(M1)**

$4x^{\frac{3}{2}}$ **A1**

$+x^{-2} + c$ **A1**

Total 3 marks

Note $-2 \times \frac{x^{-2}}{-2} = +x^{-2}$: two minus signs.

MARKSCHEME (b)

$\sin(3x+1) + c$ **A1A1**

Total 2 marks

Note A1 for $\sin(3x+1)$, A1 for the coefficient $\frac{3}{3} = 1$.