Marked example 1

Paper 1 style · No calculator

1 6 marks SL 5.11 ●○○ Routine

Find the value of each integral.

(a) $\int_1^3 (3x^2 - 4x + 1)\,\mathrm{d}x$ **[3]**

(b) $\int_1^4 \frac{1}{\sqrt{x}}\,\mathrm{d}x$ **[3]**

MARKSCHEME (a)

$\left[x^3 - 2x^2 + x\right]_1^3$ **A1**

$(27 - 18 + 3) - (1 - 2 + 1)$ **M1**

$= 12$ **A1**

Total 3 marks

MARKSCHEME (b)

$\int_1^4 x^{-\frac{1}{2}}\,\mathrm{d}x = \left[2x^{\frac{1}{2}}\right]_1^4$ **A1**

$2\sqrt{4} - 2\sqrt{1}$ **M1**

$= 2$ **A1**

Total 3 marks

Note $\frac{x^{1/2}}{1/2} = 2x^{1/2}$: dividing by a half doubles.

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