Exercise 2

Paper 1 style · No calculator

2 6 marks SL 5.11 ●●○ Typical

The graphs of $y = 2x^2$ and $y = 4x$ meet at two points.

(a) Find the x-coordinates of these points. **[2]**

(b) Find the area of the region enclosed by the two graphs. **[4]**

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)

$2x^2 = 4x \Rightarrow 2x(x-2) = 0$ **(M1)**

$x = 0,\ x = 2$ **A1**

Total 2 marks

MARKSCHEME (b)

$\int_0^2 (4x - 2x^2)\,\mathrm{d}x$ **M1**

$\left[2x^2 - \frac{2x^3}{3}\right]_0^2$ **A1**

$= 8 - \frac{16}{3}$ **A1**

$= \frac{8}{3}$ **A1**

Total 4 marks