Solutions

Each answer shows the steps, then the **result**.

2.1

- $2x^3 - 2x^2 + x + C$

2.2

- $\left[-\dfrac{1}{x}\right]_1^2 = -\dfrac{1}{2} - (-1) = \dfrac{1}{2}$

3.1 B

- $[x^2]_0^3 = 9$

3.2

- $y = \displaystyle\int (3x^2 - 4x)\,dx = x^3 - 2x^2 + C$; use $(2, 5)$: $5 = 8 - 8 + C \Rightarrow C = 5$; $y = x^3 - 2x^2 + 5$

3.3

(a)

- $\displaystyle\int_0^4 x^{1/2}\,dx = \left[\tfrac{2}{3}x^{3/2}\right]_0^4 = \tfrac{2}{3}(8) = \dfrac{16}{3}$

(b)

- $V = \pi \displaystyle\int_0^4 (\sqrt{x})^2\,dx = \pi \int_0^4 x\,dx = \pi \left[\tfrac{x^2}{2}\right]_0^4 = 8\pi$