Solutions

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

2.1

- $x = y^2$ (for $y \geq 0$)

2.2

- $y = y^2 \Rightarrow y = 0, 1$

2.3

- $\left[4y - \frac{y^3}{3}\right]_0^2 = 8 - \frac{8}{3} = \frac{16}{3}$

3.1 B

- integrating in y uses right minus left

3.2

(a)

- $y^2 = 2y \Rightarrow y = 0, 2$

(b)

- right $= 2y$, left $= y^2$; $\displaystyle\int_0^2 (2y - y^2)\,dy = \left[y^2 - \frac{y^3}{3}\right]_0^2 = 4 - \frac{8}{3} = \frac{4}{3}$

3.3

- $y^2 - 1 = 3 \Rightarrow y = \pm 2$; right $= 3$, left $= y^2 - 1$; $\displaystyle\int_{-2}^2 \left(3 - (y^2 - 1)\right)\,dy = \int_{-2}^2 (4 - y^2)\,dy$ $= \left[4y - \frac{y^3}{3}\right]_{-2}^2 = \frac{32}{3}$