

Solutions

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

2.1

- $x^2 = 4 \Rightarrow x = \pm 2$

2.2

- $\int_{-2}^2 (4 - x^2) dx$

2.3

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

3.1 B

- integrate top minus bottom

3.2

(a)

- $x = 0, 1$

(b)

- $\int_0^1 (x - x^2) dx = \left[\frac{x^2}{2} - \frac{x^3}{3}\right]_0^1 = \frac{1}{6}$

3.3

- Intersect: $6x - x^2 = x \Rightarrow x^2 - 5x = 0 \Rightarrow x = 0, 5$; top is $6x - x^2$; $\int_0^5 ((6x - x^2) - x) dx = \int_0^5 (5x - x^2) dx = \left[\frac{5x^2}{2} - \frac{x^3}{3}\right]_0^5 = \frac{125}{2} - \frac{125}{3} = \frac{125}{6} \approx 20.8$