

Solutions

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

2.1

- $R = f(x) + 2$

2.2

- outer = $4 - (-1) = 5$; inner = $1 - (-1) = 2$

2.3

- $(x + 1)^2 = x^2 + 2x + 1$

3.1 B

- each radius is the curve's distance to the line $y = k$

3.2

(a)

- On $(0, 2)$, $2x \geq x^2$, so outer (from $2x$) = $2x + 1$, inner (from x^2) = $x^2 + 1$

(b)

- $V = \pi \int_0^2 ((2x + 1)^2 - (x^2 + 1)^2) dx$

3.3

- Distances to $y = 2$: outer (from $y = x$, the lower curve, farther below 2) = $2 - x$;
inner (from $y = \sqrt{x}$) = $2 - \sqrt{x}$; $V = \pi \int_0^1 ((2 - x)^2 - (2 - \sqrt{x})^2) dx$