

Solutions

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

2.1

- $A = \frac{\sqrt{3}}{4}s^2$

2.2

- $A = \frac{\pi}{8}s^2$

2.3

- $V = \int_0^2 \frac{\sqrt{3}}{4}x^2 dx = \frac{\sqrt{3}}{4} \left[\frac{x^3}{3} \right]_0^2 = \frac{\sqrt{3}}{4} \cdot \frac{8}{3} = \frac{2\sqrt{3}}{3}$

3.1 C

- radius $s/2$ gives $\frac{1}{2}\pi(s/2)^2 = \frac{\pi}{8}s^2$

3.2

(a)

- $s = 2 - x$

(b)

- $\int_0^2 \frac{\sqrt{3}}{4}(2-x)^2 dx$

3.3

- $s = \sqrt{x}; V = \int_0^4 \frac{\pi}{8}(\sqrt{x})^2 dx = \frac{\pi}{8} \int_0^4 x dx = \frac{\pi}{8} \left[\frac{x^2}{2} \right]_0^4 = \frac{\pi}{8} \cdot 8 = \pi$