Answers to Worksheet 24 - Solids Defined by Cross Sections

Calculus AB

1. $\displaystyle\int_0^1 (\sqrt{x} - x^2)^2 \, dx$

2. $\displaystyle\int_0^1 4(\sqrt{x} - x^2) \, dx$

3. $\displaystyle\int_0^1 \frac{\sqrt{3}}{4}(\sqrt{x} - x^2)^2 \, dx$

4. $\displaystyle\int_0^1 \frac{1}{2}(\sqrt{x} - x^2)^2 \, dx$

5. $\displaystyle\int_0^1 \frac{\pi}{8}(\sqrt{x} - x^2)^2 \, dx$

6. $\displaystyle\int_0^1 (\sqrt{y} - y^2)^2 \, dy$

7. $\displaystyle\int_0^1 3(\sqrt{y} - y^2)^2 \, dy$

8. $\displaystyle\int_0^1 \frac{\sqrt{3}}{4}(\sqrt{y} - y^2)^2 \, dy$

9. $\displaystyle\int_0^1 \frac{1}{2}(\sqrt{y} - y^2)^2 \, dy$

10. $\displaystyle\int_0^1 \frac{\pi}{8}(\sqrt{y} - y^2)^2 \, dy$

11. $\displaystyle\int_0^4 \frac{\sqrt{3}}{4}(4 - x)^2 \, dx = \frac{16\sqrt{3}}{3} \approx 9.2376$

12. $\displaystyle\int_{-2}^2 (8 - 2x^2)^2 \, dx = 2\int_0^2 (8 - 2x^2)^2 \, dx = \frac{2048}{15} \approx 136.53$

13. $\displaystyle\int_0^3 \frac{\pi}{8}(6 - 2y)^2 \, dy = \frac{9\pi}{2} \approx 14.137$

14. $\displaystyle\int_{-1}^2 2(x - x^2 + 2) \, dx = 9$

15. $\displaystyle\int_0^1 \frac{1}{4}(1 - y^{1/3})^2 \, dy = \frac{1}{40} \approx 0.025$