

Problem Set 80

2. 36,000 joules

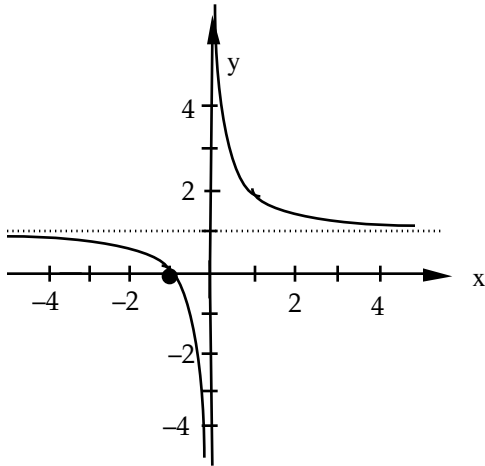
4a. $V = \frac{1}{3}\pi x^2 \sqrt{48 - x^2}$

b. $x = 4\sqrt{2}$ cm; $y = 4$ cm

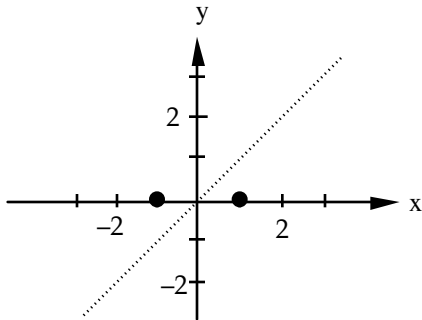
c. using a graphing calculator
 $V = 134.041$ when $x = 5.657$

d. $V = \frac{128}{3}\pi \text{ cm}^3$

6.



8.



10. $\frac{1}{45}$

12. 0

14. $8\pi \text{ units}^3$

16. $(2\sqrt{5}, -\sqrt{5}), (-2\sqrt{5}, \sqrt{5})$

18. $\frac{\cos x}{1 + \sin^2 x} + x^2 \cot x + 2x \ln|\sin x|$
 $+ e^{\sec x} \sec x \tan x$

20. $\ln|x^3 + e^x| + C$

22. $\frac{1}{4} \arcsin \frac{2x^2}{\sqrt{6}} + C$

24. $\{y \in \mathfrak{R} \mid -1 < y < 1\}$