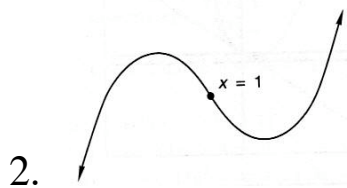


Calculus — Problem Set 51



4. a) Inflection

point: $x = \frac{1}{2}$

b) Concave up:

$\left(\frac{1}{2}, \infty\right)$

6. $\sin^6 t + C$

8. $e^{2x^2} + C$

10. $e^{4\sin x} + C$

12. $e^x (x^2 - 1)^{29} (x^2 + 60x - 1)$

14.
$$\frac{(x^2 + 1)\cos x - 20x \sin x}{(x^2 + 1)^1}$$

16. $e^{\tan(\sin x)} \sec^2(\sin x) \cos x$

18.

$1 + \ln 4 \approx 2.3863 \text{ units}^2$

20. a) $\int_0^5 x dx$

b) $\frac{25}{2}$

22. (1.935, 1.935)

24. C

Calculus — Problem Set 52

2. $y = 5$ and $x = 5$

4. Dimensions:

$15.774 \text{ cm} \times 5.774 \text{ cm} \times 2.1133 \text{ cm}$
 $V_{\max} = V(2.1133) \approx 192.4501 \text{ cm}^3$

6. $(x^2 + 3)^{3/2} + C$

8. $\ln|x^2 - 1| + C$

10. $\frac{2}{5} x^{5/2} - \frac{2}{3} x^{3/2} + C$

12. $-(x+1)^{-1/2} (x-1)^{-3/2}$

14. $e^{x^2+1} (2x) + e^{x^2+1}$

16. $(e - e^{-1} + 2) \approx 4.3504 \text{ units}^2$

18. e^x

20. $\{x \in \mathbb{R} \mid x \geq 0, x \neq 1\}$

22. (0.682, 0.682)

24. A