

HW §5.4 Numbers 4,6,8,14,22,26,34,40,50

4.

$$\begin{aligned} & \frac{d}{dx} \left[\frac{\sqrt{x^2 + a^2}}{a^2 x} + C \right] \\ &= -\frac{d}{dx} \left[\frac{\sqrt{x^2 + a^2}}{a^2 x} \right] \\ &= -\left[\frac{\frac{xa^2x}{\sqrt{x^2+a^2}} - a^2\sqrt{x^2+a^2}}{a^4x^2} \right] \\ &= -\left[\frac{xa^2x - a^2(x^2+a^2)}{\sqrt{x^2+a^2} a^4x^2} \right] \\ &= \frac{a^4}{a^4x^2\sqrt{x^2+a^2}} \\ &= \frac{1}{x^2\sqrt{x^2+a^2}} \end{aligned}$$

6. $\frac{3}{4}x^{4/3}$

8. $\frac{1}{2}x^2 + \frac{2}{5}x^5$

14. $2 \sin x + C$

22. $2v^3 + 13/2v^2 - 5v|_0^4 = 212$

26. 31.5

34. 0.5

40. 3

50. The difference in elevation of the trail between 3 miles and 5.