

Problem Set 88

2. 36,000 newtons

4. $2\pi \int_0^{\pi/4} x \sec x \, dx$

6. $x^2 - y^2 = C$

8. $y = \frac{3}{2}x^2 - 3$

10. $10,206x^4y^{10}$

12a. $\frac{dS}{dt} = -\frac{1}{8} \frac{\text{m}}{\text{min}}$

b. $\frac{dA}{dt} = -6 \frac{\text{m}^2}{\text{min}}$

14. $\sec(2x)[2x \tan(2x) + 1] + \frac{b \cos x - a \sin x + 1}{(b + \cos x)^2} - \frac{1}{\sqrt{a^2 - x^2}}$

16. $\arcsin \frac{x}{a} - \sqrt{a^2 - x^2} + C$

18. $c = \frac{9}{2}; \quad \text{midpoint} = \frac{9}{2}$

20. 1

22. $\frac{1}{x}$

24. 0