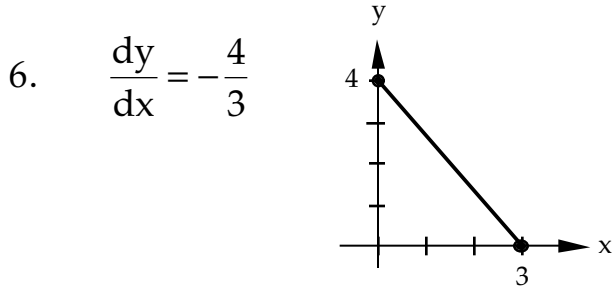


### Problem Set 109

2.  $L = \frac{8}{27}(10\sqrt{10} - 1)$  units

4.  $L = \int_0^3 \sqrt{1 + (\cos x + 2x)^2} dx$



8.  $r = 3$

10.  $\frac{17}{12}$

12.  $-\frac{\ln x}{x}$

14.  $V = 2\pi(\ln 2 + 1)$  units<sup>3</sup>

16.  $-\frac{1}{2}\cot(2x) - x + C$

18.  $(f^{-1})' \left( \frac{1}{2} \right) = \frac{2\sqrt{3}}{3}$

20.  $69.075^\circ$

22.  $\frac{2}{x^2 + 4} + (\cos x - \sin x)e^{\sin x + \cos x}$

$$-\frac{1}{e^x - \sin x} + \frac{(1+x)(e^x - \cos x)}{(e^x - \sin x)^2}$$

24.  $a_n = \frac{2^n - 1}{2^n}, \quad n = 1, 2, 3, \dots$