

Problem Set 93

2a. -3 units
b. $x(7) = 1$

4a. $0, \frac{1}{3}, \frac{2}{3}, 1$
b. 4 units

6. 0.6823278038

8. $f^{-1}(3) = 1; \quad (f^{-1})'(3) = \frac{1}{5}$

10. $-\infty$

12. $y = \tan x$

14. $a = 2$

16. No. The function is not continuous at $x = 0$.

18. $-\frac{1}{4}\cos^2(2x) + C$
or $\frac{1}{4}\sin^2(2x) + C$
or $-\frac{1}{8}\cos(4x) + C$

20. $2\pi \int_1^2 (-x^4 + 3x^3 - 2x^2) dx$

22a. $A = k \ln k - k + 1$
b. $k = e$
c. $\frac{dA}{dt} = 2 \text{ units}^2 / \text{sec}$

24. $a = -\frac{3}{4}; \quad b = 2; \quad c = 0$
 $f(x) = -\frac{3}{4}x^2 + 2x$