§5.2: **6.** 1/16 **8.** 5 **56.** 140

§5.3: **10(a)** 700 **(b)** 1315 **(c)** 1400

§6.2: **16** \$10806.08 **24(a)** \$86342.11 **(b)** \$37274.80

§9.1: **2.** $-1, -1$ **4.** 6,6 **6.** DNE, 15 **8.** 2,0 **10.** DNE, DNE, DNE, DNE **12.** $-2, 0$,DNE,0 **16.** you do the table; limit is 2 **18.** you do the table; limit is 0 **40.** $4x$ **56.** 5 **68.** (a)\$2.00, (b) DNE

§9.2: **2.** (a) continuous; (b) discontinuous ($f(-4)$ DNE); (c) discontinuous ($\lim_{x\to 3} f(x)$ DNE; (d) discontinuous ($f(-4)$ DNE and $\lim_{x\to 5} f(x)$ DNE **4.** continuous **6.** continuous **8.** continuous **10.** discontinuous **12.** discontinuous **14.** continuous **44.** (a) no (b) yes (c) yes (d) $t \geq 0$ **50.** discontinuous at $p = 100$ (impossible to remove 100% of pollution) **56.** (a) \$0.77 (b) \$0.77 (c) yes (d) DNE (e) \$0.99 (f) no

§9.3: **4.** (b) -2 (c) -2 (d) (2,7) **10.** (a) $f'(x) = -5$ (b)-5,-5 (c) -5 **12.** (a)$f'(x) = 32x - 4$ (b)$32x - 4$, 28 (c) 28 **28.**(a) G, H, I, J (b) G, I, J

§9.4: **12.**(a) 18 (b) 18 **1.8** $8x^{3/5} - (5/2)x^{-1/6} + (1/3)x^{-2/3}$ **26.** $y = -10x + (38/3$ **30.**$x = 0, 1, -1$.

§9.5: **4.** $7t^6 - 4t^3 + 3t^2$ **16.**$4x/(x^2-1)^2$ **26.**(a) 3/4 (b) 3/4

§9.6: **4.** $(20s + 50)(s^2 + 5s)^9$ **6.** $12x^2/(4x^3+1)^2$ **8.** $15q^2/(q^3+1)^6$ **10.** $\frac{4x-16}{3\sqrt[3]{x^2-8x}}$ **16.** $\frac{6(x-1)}{\sqrt[3]{(x-1)^4}}$ **24.** (a) -3 (b)21 **26.**$y = 300x - 475$

§9.7: **18.** $-\frac{(x^2-3)^4}{x^2} + 8(x^2-3)^3$ **24.**$\frac{6(x^2-10)(5-x^2)^2}{x^9}$ **30.** $3\sqrt[3]{4x^4+3} + \frac{16x^4}{\sqrt[3]{(4x^4+3)^2}}$ **34.** (a) $6x^2(x^3-5)^2$ (b) $6x^2(2x^3-5)^2$ (c) $-\frac{6x^2}{(x^3-5)^4}$ (d)$-\frac{56x^2}{(3x^3-5)^4}$

§9.8: **4.** $120x^3 - 36x^2 + 24$ **8.** $6 + \frac{2}{9\sqrt[3]{x^4}}$ **16.**$\frac{10}{27\sqrt[3]{x^8}}$ **24.** $\frac{24}{x^5}$ **40.**-32

§11.1: **12.** $\frac{2q}{q^2+4}$ **18.**$\frac{3}{x} + \frac{1}{x+1}$ **22.** $(3/t) + \frac{2t}{t^2-1}$ **30.** $\frac{3}{2(3x+1)}$

§11.2: **4.** $4e^x - \frac{1}{x}$ **10.**$\frac{xe\sqrt{x^2-9}}{\sqrt{x^2-9}}$ **24.** $\frac{e^{2x^2}}{x} + 4xe^{2x^2}\ln(4x)$ **28.**$\frac{4}{(e^x+e^{-x})^2}$ **52.** kCe^{kt}

§11.3: **6.** 3/5 **16.** $-\frac{10x^4-2x-5}{12y^3+21y^2}$ **22.** $\frac{4x\sqrt{x^2+y^2}}{1-4\sqrt{x^2+y^2}}$ **30.** $y = 0$ **34.** $\frac{dy}{dx} = -y/x = -(e/x)^2$ **42.**$\frac{2y-xy}{xy-x}$ **62.** $\frac{dq}{dp} = -4/5$. The marginal decrease in demand at \$50 is 4/5.

§11.4: **12.** 704 units/sec **14.** $1/4\pi$ in/sec **20.** 0.07 units/month **36.** 25 knots **38.** $200/(18^2\pi) = 0.196$ in/sec