1 Chapter 7

7.1.6: Not one-to-one.

7.1.12: Not one-to-one.

7.1.14: $h(x)$ is one-to-one.

7.1.20: $f^{-1}(1) = 0$.

7.1.40: $(f^{-1})'(2) = 1/4$.

7.1.42: $(f^{-1})'(2) = 2/3$.

7.1.44: $G'(2) = -1$.

7.2*.4: $\ln 3 + 2\ln x - 5\ln(x+1)$.

7.2*.8: $\ln\left(\frac{xy^a}{z^b}\right)$.

7.2*.10: Ask in class.

7.2*.14: $\frac{2x}{x^2+10}$.

7.2*.16: $\frac{-\sin(\ln x)}{x}$.

7.2*.24: $\frac{4}{x} + 2\cot x$.

7.2*.26: $\frac{-6}{9u^2-4}$.

7.2*.32: $y' = \frac{1-2\ln x}{x^3}$, $y'' = \frac{6\ln x-5}{x^4}$.

7.2*.44: $y' = \left(\frac{y}{x}\right)\frac{xy\cos x-1}{1-y\sin x}$.

7.2*.56: $y' = \frac{(x^3+1)^4\sin^2 x}{x^{1/3}}\left(\frac{12x^2}{x^3+1} + 2\cot x - \frac{1}{3x}\right)$.

7.2*.58: $y' = \frac{x}{1-x^4}\sqrt[4]{\frac{x^2+1}{x^2-1}}$.

7.2*.64: $\ln(\ln 6)$.

7.2*.66: $\ln(2 + \sin x) + C$.

7.2*.74: $f(x) = -\ln x + (\ln 2)x - \ln 2$.

7.3*.4: a) $\sin x$, b) xe^x.

7.3*.6: a) $x = \frac{1}{2}(\ln 7 - 3)$, b) $x = \frac{1}{2}(5 - e^{-3})$.

7.3*.8: $\ln(\ln 10)$.

7.3*.26: 0.

7.3*.28: -1.

7.3*.30: ∞.

7.3*.32: $y' = \frac{xe^x}{(x+1)^2}$.

7.3*.36: $y' = e^x \left(\ln x + \frac{1}{x}\right)$.

7.3*.40: $y' = -\pi e^{\pi x} \sin(e^{\pi x})$.

7.3*.70: $\frac{1}{2}\left(1 - \frac{1}{e}\right)$.

7.4*.8: a) -1, b) 2.

7.4*.10: a) -1, b) 28.

7.4*.24: $g'(x) = x^3 4^x (x \ln 4 + 4)$.

7.4*.26: $y' = 10^{\tan \theta}(\ln 10)(\sec^2 \theta)$.

7.4*.28: $y' = 2^{3^{x^2}}(\ln 2)3^{x^2}(\ln 3)(2x)$.

7.4*.32: $y' = x^{1/x}\left(\frac{1 - \ln x}{x^2}\right)$.

7.4*.36: $y' = (x)^{\ln x}\left(\frac{2\ln x}{x}\right)$.

7.4*.40: $f'(x) = x^{\cos x}\left[\frac{\cos x}{x} - \sin x \ln x\right]$.

7.4*.42: $\frac{15}{64\ln 2}$.

7.4*.46: $\frac{1}{\ln 2}\ln(2^x + 1) + C$.

7.4*.52: 0.

7.5.2: $a)\ -\frac{\pi}{4},\ b)\ \frac{\pi}{6}$.

7.5.6: $a)\ -\frac{\pi}{4},\ b)\ \frac{\sqrt{3}}{2}$.

7.5.8: $\frac{5}{4}$.

7.5.10: $\frac{-1}{\sqrt{2}}$.

7.5.12: $\frac{x}{\sqrt{1-x^2}}$.

7.5.24: $1 - \frac{x\sin^{-1}x}{\sqrt{1-x^2}}$.

7.5.28: $\frac{e^{\sec^{-1}t}}{t\sqrt{t^2-1}}$.

7.5.32: $\frac{1}{2(1+x^2)}$.

7.5.44: $\frac{\pi}{3}$.

7.5.46: $-\frac{\pi}{2}$.

7.5.60: π.

7.5.62: $\frac{1}{2}\sin^{-1}(2t) + C$.

7.5.64: $\frac{\pi}{4}$.

7.5.66: $\frac{1}{2}(\tan^{-1}x)^2 + C$.

7.5.68: $\frac{1}{2}\sec^{-1}(\frac{1}{2}x) + C.$

7.5.70: $\frac{1}{2}\sin^{-1}(e^{2x}) + C.$

7.7.6: $-1.$

7.7.8: $\frac{a}{b}.$

7.7.14: $0.$ L'Hospital's Rule does not apply here.

7.7.20: $-\frac{1}{\pi}.$

7.7.22: $\frac{1}{6}.$

7.7.28: $0.$

7.7.34: $\sqrt{\frac{1}{2}}.$

7.7.36: $0.$ L'Hospital's Rule does not apply here.

7.7.38: $0.$

7.7.40: $0.$

7.7.42: $0.$ L'Hospital's Rule does not apply here.

7.7.46: $0.$

7.7.48: $\frac{1}{2}.$

7.7.50: $1.$

7.7.54: $e^{ab}.$

7.7.58: $e.$

7.7.62: e^{-8}.