MATH 122: Calculus II
Some Hints and Answers for Assignment 7
I: Section 6.1: 27, 35

Exercise 27 : The inverse function is $g(x) = \sqrt{4-x}$ and $g'(x) = \frac{1}{-2\sqrt{4-x}}$

Exercise 35: We have $g'(15) = \frac{1}{16}$

II: Section 6.2: 26, 33, 37

Exercise 26: $(\cos(\ln 2x))' = -\sin(\ln 2x) \times \frac{1}{x}$

Exercise 33: $\sec x$

Exercise 37: Use product rule on both terms on the left of $x\ln y - y\ln x = 1$. Implicit differentiation yields $y' = \frac{y(x\ln y - y)}{x(y\ln x - x)}$.

III: Section 6.3: 1, 7, 14
Recall: If $f(x) = e^{g(x)}$, then $f'(x) = e^{g(x)}g'(x)$

Exercise 1: The derivative of e^{-5x} is $e^{-5x}(-5) = -5e^{-5x}$.

Exercise 7: The derivative of $e^{\sqrt{x+1}}$ is $e^{\sqrt{x+1}}\frac{1}{2\sqrt{x+1}}$

Exercise 14: The derivative of $(e^{3x} - e^{-3x})^4$ is $12(e^{3x} - e^{-3x})^3(e^{3x} + e^{-3x})$