Name: SOLUTIONS

Quiz #2 - January 19, 2007

1. If $h(x) = x + \sqrt{x}$, find $(h^{-1})'(6)$. $h^{-1}(6) = 4$

$h' = 1 + \frac{1}{2\sqrt{x}}$

$h'(h^{-1}(6)) = 1 + \frac{1}{4} = 5/4$

$\frac{1}{h'(h^{-1}(6))} = 4/5$

2. Use the laws of logarithms to expand the quantity:

$$\ln \sqrt{\frac{a^2(b^2+c^2)}{d^5}}.$$

$\frac{1}{2}(2\ln a + \ln(b^2+c^2) - 5\ln d)$

$= \ln a + \frac{1}{2}\ln(b^2+c^2) - \frac{5}{2}\ln d$

3. If $y = \ln(x^2+2)$, find y'.

$\frac{2x}{x^2+2}$

4. Neatly sketch and label the graph of $y = \ln x$.