Math 104 90A[1] October 18th, 1999. Worksheet 8

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1. Find the derivative of the following functions:

   (a) $y = f(x) = \ln[3\sqrt{x}(6x+1)]$.

   (b) $y = e^{-\frac{x^2}{2}}$.

   (c) $y = f(x) = e^{16} + x^{3e} + 6^{(\sqrt{x}+3)}$.

2. Find the equation of the tangent to the curve $y = f(x) = \frac{\ln x}{x^2}$ which is parallel to the x-axis.

3. If $f(2) = 5$, $f^{'}(2) = 3$, $g(6) = 2$,and $g^{'}(6) = 1$, find $\frac{dy}{dx}$ at $x = 2$, if $y = 3^{f(x)} + \ln(g(2x+2))$.

4. The revenue r as a function of production q is given by

$$r = 6 + \ln\left(\frac{q+1}{q^2-1}\right)^{\frac{1}{2}} + 2\ln(3q^2+4).$$

   Find the marginal revenue.

[1] **Office hours:** Monday: 1:45-3:15pm, Tuesday:3:30-5:30pm, Wednesday 2:15-3:15pm