Math 151, Quiz # 6, October 15, 2013

1. Let $y = \ln(\tan(x))$. Find $\dfrac{dy}{dx}$.

2. Let $f(x) = x^4 + 2x^3 + 2x^2 + x + 1$. Let $g(x) = f^{-1}(x)$ (the inverse function). Find $g'(1)$.

3. Find an equation of the tangent line to the curve $x^2e^y + ye^x = 4$ at the point $(2, 0)$. Hint: use implicit differentiation to find $\dfrac{dy}{dx}$.