

**QUIZ 4**  
**Math 220-51**

**NetID:**  
**(Please don't put your name!)**

**October 29, 2009**

**Question 1.** (7pts) Let  $y = e^{1+\ln x} + \ln(1 + e^x)$ .

1. (2pts) Simplify this expression as much as you can! (Be careful!)

2. (5pts) Find  $\frac{dy}{dx}$ . (No need to simplify your answer.)

**Question 2.** (6pts) Find the derivative of  $y = (x^2 + 1)^x$ .

**Question 3.** (6pts) Find  $\frac{d}{dx} \left( \frac{(2x+3)^5(x^3-1)^2}{\sqrt[3]{\sin x}} \right)$ .

**Question 4.** (6pts) Find the derivative for  $y = \sec^{-1}(x)$ . Show your work!  
You may use that  $\frac{d}{dx} \sec x = \sec x \tan x$ .