

**Math 166: Honors Calculus II**      Name: \_\_\_\_\_  
**Quiz 3**   *Feb. 8, 1996*

1. Compute the derivative of  $f(x) = (1 + x^4)^{1+\cos(x)}$ .

2. a) Define the hyperbolic trig functions,  $\cosh(x)$ ,  $\sinh(x)$ , and  $\tanh(x)$ .

b) Derive a formula for  $\cosh^{-1}(x)$ , the inverse function of  $\cosh(x)$ ; state its domain and range.

c) Integrate  $\int \frac{1}{\sqrt{x^2 - 2x + 5}} dx.$

3. a) State the Theorem on Derivatives of Inverse Functions.

b) Prove that  $\frac{d}{dx} \sin^{-1}(x) = \frac{1}{\sqrt{1 - x^2}}.$