

Your Name:

Duration of the Quiz is 20 minutes. There are four problems, worth 20 points. Show all your work for full credit. Books, notes etc. are prohibited. Calculators are NOT permitted.

1. Compute the derivative dy/dx

$$y = \ln \left(\frac{(\tan^{-1} x) (\sin x) \sqrt{x^2 + 1}}{e^{\tan x} \sec(2x)} \right)$$

2. Use logarithmic differentiation to compute the derivative dy/dx .

$$y = x^{\sin x}$$

3. Find $(f^{-1})'(-2)$ where $f(x) = 4x^3 - 2x$.

4. The folium of Descartes (see the following figure) is defined by the equation $x^3 + y^3 = 6xy$. Find an equation of the tangent line to the folium of Descartes at the point $(3, 3)$.

