Math 151
Quiz 3
Fall 2008

Justify all answers with neat and organized work. Clearly indicate your answers. 20 points possible.

1. (5 pts.) Differentiate the function. (Use differentiation formulas to write down your answer almost immediately. Don't use the "four-step process.")

(a) (2 pts.) $Y(t) = 8t^{-11}$

(b) (2 pts.) $u = \sqrt[4]{t}$

(c) (1 pt.) $y = \pi^3$

2. (5 pts.) The curve $y = 1/(1 + x^2)$ is called a **witch of Maria Agnesi**. Find the equation of the tangent line to this curve at the point $(2, \frac{1}{5})$.

3. (5 pts.) Find $h'(3)$, given that $f(3) = 4$, $f'(3) = 5$, $g(3) = 6$, and $g'(3) = 7$.

$$h(x) = \frac{x^2 f(x)}{g(x)}$$

4. (5 pts.) For this problem, find the exact answer, using radicals if necessary.

(a) Convert $\frac{2\pi}{3}$ radians to degrees.

(b) Find $\sec \frac{2\pi}{3}$.

(c) Find $\tan \frac{2\pi}{3}$.

(d) Find $\csc \frac{2\pi}{3}$.