NAME: MATH1210-002

Quiz 5: §2.5, 2.6 & 2.7

June 29, 2016

Instructions: Please show all of your work as partial credit will be given where appropriate, *and* there may be no credit given for problems where there is no work shown. All answers should be boxed and completely simplified, unless otherwise stated. No electronics are allowed.

1. **[8 points]** Find $D_x y$ for $y = \tan\left[\sin\left(\cos(x^2 + 5/x)\right)\right]$ *Do not simplify*

2. **[8 points]** Find $f^{(100)}(x)$ for $f(x) = \frac{2}{x-1}$.

3. **[8 points]** Find $\frac{dy}{dx}$ for $y^2 + \sqrt{25xy} + \sin(x^2) + x^{3/2} = 35$. *You need to solve for dy/dx, but don't need to simplify past that.*

4. **[8 points]** Find $\frac{dy}{dx}$ for $y = \left(\frac{\pi^3 + 2x^5}{\sin^2(\pi x)}\right)^{-2}$ *Do not simplify*

5. **[8 points each]** Find $f'''(x)$ for $f(x) = \cos(4x) + 2x^4 - 5x^3 + 8x$.