MA181   Professor Katiraie Calculus I (Sections 3.4 – 3.6)   Quiz Five

Name:_____

1) Differentiate the following functions: (2 Points Each)

A) $f(x) = e^{2x} \csc x$

B) $y = \dfrac{\cot x}{1 + \sec x}$

C) $f(\theta) = \dfrac{1 + \sin 2\theta}{\theta + \sin 3\theta}$

D) $f(\theta) = \sqrt[5]{1 + \tan \theta}$

2) Algebraically find the following $\dfrac{d}{dx}(\csc x)$ using the methods discussed in class.

3) Find the equation of the tangent line to the curve $y = e^{2x} \sin x$

at the point $\left(\dfrac{\pi}{2} , e^{\pi} \right)$ (2 Points)

4) A table of values for f, g, f , and g is given: (2 Points each)

x	f(x)	g(x)	f (x)	g (x)
1	3	2	4	6
2	1	8	5	7
3	7	2	7	9

a) If $F(x) = f(g(x))$, find $F'(1)$

b) If $G(x) = g(f(x))$, find $G'(1)$

5) Find the equation of the tangent line to the curve $\begin{array}{l} x = 2\sin 2t \\ y = 2\sin t \end{array}$,

at the point $(\sqrt{3} , 1)$ (2 Points)

6) Find the equation of the tangent to the circle $x^2 + y^2 = 4$ at the point (0 , -2).

(2 Points)