MATH 205 – Calculus I **SQ 3.9**

Name: _____ Date: _____

1. Fill in the following derivative rules:

$\frac{d}{dx}\sqrt{x} =$ $\frac{d}{dx}\csc x =$

$\frac{d}{dx}x^n =$ $\frac{d}{dx}\tan x =$

$\frac{d}{dx}\frac{1}{x} =$ $\frac{d}{dx}b^x =$ $\frac{d}{dx}e^x =$

$\frac{d}{dx}\cot x =$ $\frac{d}{dx}\cos x =$

$\frac{d}{dx}x =$ $\frac{d}{dx}\sin x =$

$\frac{d}{dx}\sec x =$ $\frac{d}{dx}c =$

$\frac{d}{dx}\log_b x =$ $\frac{d}{dx}\ln x =$

Chain Rule: $\frac{d}{dx}f(g(x)) =$ Product Rule: $\frac{d}{dx}f(x)g(x) =$

Quotient Rule: $\frac{d}{dx}\frac{f(x)}{g(x)} =$

Instructions: Though calculators can be used for the entire daily question, all problems require you to show your work. Any answer without proper justification will receive ***ZERO*** credit. Only **EXACT** answers will receive full credit unless otherwise noted.

2. Determine $f'(x)$ for $f(x) = 5\ln(\cos(x)) + 3^{\sqrt{x^4+1}}$

3. Use logarithmic differentiation to determine $f'(x)$ for $f(x) = (\tan x)^{\sin x}$