_____ / 50 total points (both parts)

Test #2 (Part 1 – No Calculator) Name: _____

Math 180, Prof. Beydler Wednesday, October 24, 2018

Directions: Show all work. No calculator, books, or notes. Your desk and lap must be clear (no phones, no smart watches, etc.). If you have a phone in your lap or on your chair, it is considered cheating, and you will receive a zero on this test. Write your answers in the indicated places, or box your answers. When you're finished with Part 1, please turn it in, take a bathroom break, get your calculator out, and start Part 2. Good luck!

1. (4 points) Find an equation for the tangent line of $x^2y + e^{x+y} = 1$ at $(0, 0)$.

Answer: _____

2. (3 points) Use logarithmic differentiation to find $\frac{dy}{dx}$ given that $y = \frac{\sqrt[4]{x}\cdot(2x^3+1)^2}{e^{\tan^{-1}x}}$.

$\frac{dy}{dx} =$ _____

3. (3 points) Prove that the derivative of $y = \csc x$ is $\frac{dy}{dx} = -\csc x \cot x$ by using the derivatives of $\sin x$ and/or $\cos x$.

4. Find the following limits. Be sure to show your work.

a) (3 points) $\lim_{x \to 0^+} \frac{1-\cos x}{x^2}$

Answer: _____

b) (3 points) $\lim_{x \to 0^+} (1-2x)^{1/x}$

Answer: _____