Name: _____ Mark: _____

Mini-math Div 3/4: Monday, December 14, 2020 (12 minutes)

1. Find the derivative of y with respect to x in each of the following.

   (a) (2 points) $y = \sin(\cos^2 x)$

   (b) (2 points) $y = x \sin 2x$

   (c) (2 points) $y = \dfrac{x}{\cos(x^2 + 1)}$

2. Find the derivative of y with respect to x in each of the following.

(a) (2 points) $y = 2\tan x \sec x$

(b) (2 points) $y = \cot^2 2x - \csc 2x$

(c) (2 points) $\tan \dfrac{y}{x} = x$

3. (3 points) Find the equation of the line tangent to the given curve at the given point.

$$\frac{1}{2} + \sin y + \tan x = \sec 2y, \quad \text{at } \left(\frac{\pi}{4}, \frac{\pi}{6}\right)$$