

Name: \_\_\_\_\_

Mark: \_\_\_\_\_

**Mini-math Div 3/4: Monday, January 18, 2021 (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)  $y = \frac{x}{\cos(x^2 + 1)}$

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)  $\tan \frac{y}{x} = x$

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

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