

Name: _____ / 25

There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. **Show all work for full credit.**

1. (15 points) Find the derivative of each function. You do not need to simplify your answer.

(a) $f(x) = \sqrt{1 + \cos(x)}$

(b) $g(\theta) = 5 \cot(\theta)$

(c) $x(t) = \frac{6}{t^2} + \frac{\csc(t)}{6}$

(d) $f(x) = x^3 \sec(x)$

(e) $h(x) = \frac{\tan(2x)}{x^2 + 1}$

2. (6 points) Find $\frac{d^3y}{dx^3}$ for $y = x^{-1} + \sin(5x)$.

3. (4 points) Determine all x -values where the graph of $H(x) = (3x^2 + x)^{-1}$ has a horizontal tangent.