

Name: _____

Math 151 Calculus I – Crawford

Take-Home Quiz 2

Due: Thursday, 16 March 2017 by 9:30am

Books, notes, and calculators *are* allowed. You are allowed to work with each other and to get help from the tutors, but you cannot get help from me. ***You must show all your work.*** Good luck! [Scores will be scaled to 15 points after grading.]

1. (6 pts) Solve the following equation. Find only solutions in the interval $[0, 2\pi)$. [Exact solutions.]

$$\sin x \tan x + \sin x = 0$$

2. (6 pts) Solve the following equation. Find **(a)** all solutions and **(b)** all solutions in the interval $[0, 2\pi)$. [Exact solutions.]

$$4 \cos^2(3x) - 3 = 0$$

3. (6 pts) Find the derivative of the function $g(x) = x \left(\frac{3x^2 + 1}{2x^3 - 5x} \right)^5$ [Do not simplify.]

4. (6 pts) Find the first **and** second derivatives of $y = \sec(4\theta)$. [Do not simplify the 2nd derivative.]

5. (6 pts) Find an equation of the tangent line to $y = \sqrt{5x + 6}$ at $x = 2$.