Circle your Instructor:
Faudree, Williams, Zirbes

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Math 251 Fall 2017

Quiz #5, October 11th

Name: ————————————————————————

There are 25 points possible on this quiz. This is a closed book quiz. Calculators and notes are not allowed. **Please show all of your work!** If you have any questions, please raise your hand.

Exercise 1. (6 pts.) find the derivatives of the following functions.

(a) $g(x) = \sec^4(3x)$

(b) $f(x) = e^{x \cot x}$

Exercise 2. (6 pts.) Differentiate the following functions.

(a) $f(\theta) = \theta \sin\theta \cos\theta$

(b) $f(t) = 2^{3t^2}$

Exercise 3. (4 pts.) For what values of x, if any, does $y = \sqrt{x^2 + 3x}$ have a horizontal tangent?

Exercise 4. (4 pts.) Find an equation of the tangent line to the curve $y = \dfrac{6}{(\tan x + 3)^2}$ at the point $(0, 2)$. [The point should have been $(0, 2/3)$.)]

Exercise 5. (5 pts.)

(a) Find the first four derivatives of $y = \sin(3x)$.

(b) Using your answer to (a), find the 50th derivative of $y = \sin(3x)$.