

MATH 141 (Section 5 & 6)  
Prof. Meade

University of South Carolina  
Fall 2013

Quiz 5  
September 26, 2013

Name: Key  
Section: 005 / 006 (circle one)

1. (5 points) Differentiate the function  $f(x) = \frac{\tan(x)}{e^x}$ . Simplify your answer.

$$\begin{aligned} f'(x) &= \frac{e^x \sec^2 x - e^x \tan x}{(e^x)^2} = \frac{e^x (\sec^2 x - \tan x)}{e^{2x}} \\ &= \frac{\sec^2 x - \tan x}{e^x} \end{aligned}$$

2. (5 points) Differentiate the function  $g(\theta) = \theta^2 \cos(\theta)$ . Simplify your answer.

$$\begin{aligned} g'(\theta) &= \theta^2 (-\sin \theta) + 2\theta \cos \theta \\ &= \theta (2 \cos \theta - \theta \sin \theta). \end{aligned}$$