MATH 141 (Section 5 & 6)
Prof. Meade

Quiz 5
September 26, 2013

University of South Carolina
Fall 2013

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

1. (5 points) Differentiate the function $f(x) = x^5 - 2e^x$.

$f'(x) = 5x^4 - 2e^x$

2. (5 points) Find an equation for the tangent line to the graph of $y = x^{-4} + 3x^{5/2}$ at $(1, 4)$.

$\frac{dy}{dx} = -4x^{-5} + 3 \cdot \frac{5}{2} x^{3/2} = -4x^{-5} + \frac{15}{2} x^{3/2}$

$m = \left.\frac{dy}{dx}\right|_{x=1} = -4(1)^{-5} + \frac{15}{2}(1)^{3/2} = -4 + \frac{15}{2} = \frac{7}{2}.$

$y = 4 + \frac{7}{2}(x-1)$

$= \frac{7}{2}x + 4 - \frac{7}{2}$

$= \frac{7}{2}x + \frac{1}{2}$