Math 131 - Quiz 8

Name _____

March 31, 2022

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is due April 7.

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1. (2 points) Use logarithmic differentiation to find the derivative of $y = \dfrac{x^{3/2}(7x+1)}{e^x \cos^2 x}$.

2. (2 points) Let $g(x) = \log_5(2x^3+7)^4$. Compute $g'(1)$. Write your final answer in decimal form, rounded to the nearest thousandth.

Turn over.

3. (2 points) Let $b(x) = 2^{4x} + 4x^2$. Determine $b'(x)$.

4. (2 points) Find the linearization of $f(x) = x^2 + x^{1/2} + \dfrac{1}{x}$ at $x = 1$, then use it to approximate $f(0.98)$.

5. (2 points) Use differentials to approximate the change in $y = \sqrt{x^3 + 1}$ as x changes from 2 to 2.07.