

Math 131 - Quiz 9

October 29, 2025

Name _____

Score _____

Show all work to receive credit. Supply explanations where necessary.

1. (2 points) Let $f(x) = x \cos^{-1}(2x)$. Find $f'(x)$. Then find the exact value (not a decimal approximation) of $f'(0)$

2. (5 points) Determine each derivative.

(a) $\frac{d}{dx} e^{4x} \sin(2x)$

(b) $\frac{d}{du} \tan^{-1}(u^3)$

(c) $\frac{d}{dx} \ln(x + \sqrt{x})$

3. (3 points) Let $F(x) = \ln \left(\frac{x^4 e^{2x}}{(2x+5)^3} \right)$. Use the logarithm laws to expand $F(x)$. Then determine $F'(x)$.