

Time: 20 min.

ID# _____

Quiz 1 MATH 101-T142

Write Serial # _____

1. **Evaluate** the integral using suitable area formulas: $\int_{-3}^0 (|t| - 5\sqrt{9-t^2}) dt$.



2. Let $G(x) = \frac{d}{dx} \int_{\ln x}^{10} [1 - \cos(\pi t)]^{100} dt$. **Find** $G(e)$. **Hint:** Use the Fundamental Theorem of Calculus Part I



3. **Evaluate** the integral $\int_0^{\pi/4} \frac{\sec^2 \theta}{\sqrt{e^{2 \tan \theta}}} dx$



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1. Let $f(x) = \sqrt{4-x^2}$, $x \in [-2, 0]$. Using the **Mean Value Theorem of Integrals**,
find the value(s) of $c \in (-2, 0)$ so that $f(c) = f_{ave}$.

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2. Let $F(x) = \frac{d}{dx} \int_5^{\sin x} \sqrt{9 + \ln 2|t|} dt$. Find $F(\pi/6)$. **Hint:** Use the Fundamental Theorem of Calculus Part I

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3. Evaluate the integral $\int_2^{\sqrt{2}} \frac{\sec^2(\sec^{-1} x)}{x\sqrt{x^2-1}} dx$

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