

# Math 131 - Quiz 12

May 3, 2023

Name \_\_\_\_\_

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary.

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1. (5 points) Use a definite integral to find the area of the bounded region above the  $x$ -axis and below the graph of  $y = 3x - x^2$ .

2. (4 points) Use the fundamental theorem of calculus to evaluate each definite integral.

(a)  $\int_0^{\pi} \sin x \, dx$

(b)  $\int_1^2 \left( \frac{1}{x} - e^x \right) dx$

3. (1 point) Let  $F(x) = \int_x^{\pi/4} t \tan t \, dt$ . Determine  $F'(x)$ .