Math 131 - Quiz 12

Name _____

December 7, 2023

Score _____

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

1. (2 points) Find the function f that satisfies $f'(x) = 9x^2 - 3x + 4\sin x$ and $f(0) = 7$.

2. (3 points) Use 4 subintervals of equal length and subinterval right endpoints to compute a Riemann sum for $f(x) = \sin(x^2)$ on the interval $[0, 1]$.

3. (3 points) Sketch the graph of $y = |x - 3|$ over the interval from $x = 0$ to $x = 4$. Then use area to determine the value of the definite integral $\displaystyle\int_0^4 |x - 3|\, dx$.

4. (2 points) Use the fundamental theorem of calculus to evaluate $\displaystyle\int_1^4 \left(\frac{1}{\sqrt{x}} + \sqrt{x} + x + 1\right) dx$.