

Name: _____ / 25

There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. **Show all work for full credit.**

1. [4 points] Find the derivatives of the following functions.

a. $G(x) = \int_3^x \sqrt{6 + 5t^3} dt$

b. $H(x) = \int_4^{x^5} 8 \cos\left(\frac{1}{t}\right) dt$

2. [8 points] Evaluate the definite integrals below. Simplify your answer.

a. $\int_0^2 t^2(1-t) dt$

b. $\int_1^4 \frac{4}{x^2} + 3\sqrt{x} + 1 dx$

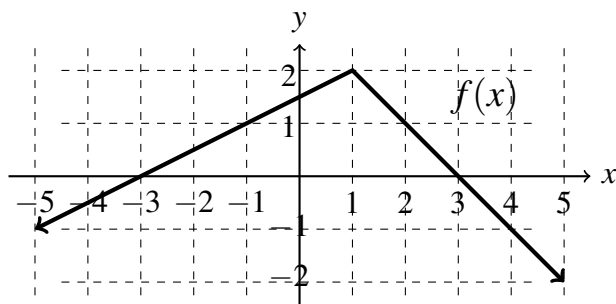
3. [9 points] Evaluate the integrals below.

a. $\int \sin(x) (\cos(x))^3 dx$

b. $\int \frac{(2 + \ln(x))^2}{x} dx$

c. $\int 5xe^{x^2+11} dx$

4. [4 points] Use the graph of $f(x)$ (below) to answer questions about $A(x) = \int_{-3}^x f(t) dt$.



a. $A(-1) = \underline{\hspace{2cm}}$

b. $A(5) = \underline{\hspace{2cm}}$

c. $A'(2) = \underline{\hspace{2cm}}$

d. On the interval $[-3, 5]$, where does $A(x)$ have a maximum?

Maximum at $x = \underline{\hspace{2cm}}$