

Math 152

Show Your Work!
Good Luck!

January 20, 2009
Quiz #2 A

Name _____
(please print)

1. State (carefully and completely) **Part 2** of the Fundamental Theorem of Calculus:
If

(2) _____
then

2. Use calculus to evaluate these integrals. **Show your work** (no work = no points)

(a) $\int_1^5 3x^2 - 8x \, dx =$ _____

(b) $\int_1^4 \frac{3}{x} + \sqrt{x} \, dx =$ _____

(6)

3. (a) $\int 6x^2 + 4e^{2x} + \frac{5}{x} \, dx =$ _____

(b) $\int \sin(3x + 5) + (2x + 1)^3 \, dx =$ _____

(4)

4. (a) $\frac{d}{dx} \left(\int_2^x \sin^3(2t) + \sqrt{t} \, dt \right) =$ _____

(b) $\frac{d}{dx} \left(\int_1^{\sin(x)} t^5 + e^{3t} \, dt \right) =$ _____

(c) $\frac{d}{dx} \left(\int_3^7 \sqrt{t+3} + \sin(t^2) \, dt \right) =$ _____

5. What are the units of $\int f(x) dx$ if the units of x are “dogs” and the units of $f(x)$ are “days”? _____

(1)

6. Name one project/job besides math and physics that Newton worked on? _____ (1)

7. The figure shows the graph of $y = f(x)$.

Carefully sketch the graph of

$$y = A(x) = \int_0^x f(t) \, dt$$

(2) for $0 \leq x \leq 5$.

