MTH 151
Quiz 7
Spring 2010

Show all work in a neat and organized fashion. Clearly indicate your answers.
20 points possible.

1. (4 pts.) Write as a single integral in the form $\int_a^b f(x)\,dx$:

$$\int_{-3}^{5} f(x)\,dx + \int_{5}^{9} f(x)\,dx - \int_{-3}^{2} f(x)\,dx$$

2. (4 pts.) Find $\int_0^{10} f(x)\,dx$ if

$$f(x) = \begin{cases} 4 & \text{for } x < 4 \\ x & \text{for } x \geq 4 \end{cases}$$

3. (4 pts.) Use Part 1 (i.e., the "less famous" part) of the Fundamental Theorem of Calculus to find the derivative of the function.

$$h(x) = \int_4^x \sqrt{1+t^7}\,dt$$

4. (4 pts.) Use Part 1 (i.e., the "less famous" part) of the Fundamental Theorem of Calculus to find the derivative of the function.

$$h(x) = \int_3^{x^4} \sin(t^2)\,dt$$

5. (4 pts.) Evaluate the definite integral. (Give complete work that shows the evaluation "by hand" using an antiderivative. Don't just use a program or calculator feature.)

$$\int_0^1 x^3(4+x^4)^2\,dx$$