Math 251: Pledged Set 11

Due: November 18, 2008

This is a pledged set. Therefore, no outside help from book, calculator, or other people.

1. Explain exactly what is meant by the statement that "differentiation and integration are inverse processes."

2. Estimate the area under the graph of $\sqrt{x}$ from $x = 0$ to $x = 4$ using four approximating rectangles and right endpoints.

3. Express
$$\lim_{n\to\infty} \sum_{i=1}^{n} \frac{\cos x_i}{x_i}\, \Delta x$$
as a definite integral on $[\pi, 2\pi]$.

4. Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of
$$G(x) = \int_x^1 \cos\sqrt{t}\; dt$$

5. Evaluate
$$\int_1^8 \sqrt[3]{x}\; dx$$