Math 026L.04 Spring 2002
Quiz #8   Name: _____

You have 20 minutes to complete this quiz which is worth 20 points. Calculators are permitted, but no other aids are allowed. Show all work neatly and in order, and clearly indicate your final answers. Answers must be justified whenever possible in order to earn full credit. When you do use your calculator, sketch all relevant graphs and write down all relevant mathematics.

1. (*15 points*)

(a) Compute $\int 25e^{-0.2x}\,dx$.

(b) Compute $\int x^2(x^3 - 3)^{10}\,dx$.

(c) Compute $\int x \sin x\,dx$.

2. (*5 points*) As you saw in lab, the arc length of a curve $f(x)$ from $x = a$ to $x = b$ is approximated by the sum given below, where Δx_k and Δy_k are the coordinate increments on the kth subinterval. What definite integral does this sum approximate?

$$\sum_{k=1}^{n} \sqrt{1 + \left(\frac{\Delta y_k}{\Delta x_k}\right)^2}\, \Delta x \quad \approx \quad \underline{\hspace{3cm}}$$