Mathematics 122A Fall 2001 Quiz 2

September 7, 2001

Name

Directions: Be sure to include in-line citations, including page numbers if appropriate, every time you use the results of discussion, a text, notes, or technology. **Only write on one side of each page.**

"*Personally, I'm always ready to learn, although I do not always like being taught.*" – Winston Churchill

Problems

1. Find, state and justify a general rule for computing the derivative with respect to x of

$$f(x) = \int_{r(x)}^{s(x)} g(t)\, dt$$

where $r(x)$ and $s(x)$ are functions of the variable x. Be sure to state any assumptions that need to be made about r, s and g for the rule to make sense.

A useful example is:

If $f(x) = \int_4^{x^3} (2t)\, dt$, then $\quad f'(x) = 2x^3 \left(3x^2\right)$