Quiz 16

MATH 139-01 and -02
Tuesday, November 11, 2003

Be sure to **show your work**. Unsupported answers receive no credit.

1. Complete the following statement: (Fundamental Theorem of Calculus) If F' is continuous on $[a, b]$, then

   $$\int_a^b F'(x)dx = \_\_\_\_\_.$$

2. Recall that if $F(x) = e^x$, then $F'(x) = e^x$, as well. Use this fact and the Fundamental Theorem of Calculus (with $F'(x) = e^x$) to determine $\int_1^4 e^x dx$ without using your calculator. I must see your work; a decimal answer alone is not sufficient.

3. Suppose you know that your stock portfolio lost \$138 in value during October. Given that $V(t)$ represents the value of your portfolio t days after October 1, evaluate

   $$\int_0^{31} V'(t)dt.$$