(5.) (5 points) Let $f(x) = 1/x$. Use the *limit definition* of the derivative (and some algebra) to compute $f'(x)$. [Show **all** work.]

(6.) (8 points)

(a) Given $F(x) = x\ln(x) - x + C$, show that $F'(x) = \ln(x)$. [Show all your work.]

(b) If $F(1) = 3$, find C.

(c) Evaluate $\int_1^3 \ln(x)\,dx$. [Give and *exact* answer, not an approximation.]