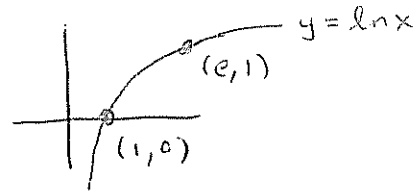# Math 5B - Weekly quiz VII
05/20/2010

NAME: _Ellie Grano_   Grade: ___/3

Evaluate the line integral $\int_C x^2\, dy$, where C is the arc of the curve $y = \ln x$ from $(1,0)$ to $(e,1)$.

$c(t) = (e^t, t) \qquad 0 \leq t \leq 1$

$c'(t) = (e^t, 1)$

$\int_C x^2\, dy = \int_0^1 (e^t)^2 \cdot 1 \cdot dt$

$\qquad = \frac{1}{2} e^{2t} \Big|_0^1 = \boxed{\frac{1}{2} e^2 - \frac{1}{2}}$