Math 220, Homework due Friday, Feb 23, 2007

Let A, B, and k denote constants. Find the derivative of each of the functions below.

(1) $x(t) = A\ln(2x) - 5e^{k-1}$

(2) $y(z) = e^A + \ln(z+2) - Bz$

(3) $L(w) = e^{w+A} - \ln(ABw) + e^k$

Each function below can be expressed as a product of two or more functions. Write such a decomposition. For example, if $f(x) = 3x^2\sin(x)$, then $f(x) = c(x)d(x)e(x)$ where $c(x) = 3$, $d(x) = x^2$ and $e(x) = \sin(x)$.

(4) $f(x) = 5x^2\sin(x)e^x$.

(5) $g(x) = e^x\sin(x\ln(x))\ln(x)$.

(6) $h(x) = e^{\ln(x)}2\sin(\cos(x))\cos(x)$.