MATH 105 - SEC 001, FALL 2010. QUIZ 5
TIME LIMIT: 10 MINUTES

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Good luck!

Problem 1

Express the following in terms of x without natural logs. Give EXACT answers, and simplify them as much as you can.

a) $ln(e^{2x})$

b) $e^{ln(2x+5)+6}$

c) $ln\left(\frac{1}{e^{5x}}\right)$

d) $ln\left(\frac{\sqrt{e^{3x}}}{e^{-2x+1}}\right)$

e) $e^{x ln(x)}$

f) $e^{3\ ln(x)+1} - 2ln(e^{2x}/e)$

Problem2

A person's blood alcohol content (BAC) is a measure of how much alcohol is in the blood stream. When the person stops drinking, the BAC declines over time as the alcohol is metabolized. If Q is the amount of alcohol and Q_0 is the initial amount, then $Q = Q_o e^{-t/\tau}$, where τ is known as the *elimination time*. How long does it take for a person's BAC to drop from 0.10 to 0.04 if the elimination time is 2.5 hours?