Name: _____

Quiz Six

	Truman	Kelly	Hui
Section 12:30	AB	AD	
(circle one) 1:30	AA	AC	AE

No notes. No calculators.

Simplify your answers. Show your work. Please put a box around $\boxed{\text{YOUR FINAL ANSWER}}$.

There are 15 points on this quiz. Please give exact answers.

$\boxed{1}$ (3 points)   Simplify the expression $\ln(5^3) - \dfrac{\log_6(25)}{\log_6(e)}$ as much as possible.

$\boxed{2}$ (3 points)   Find all solutions to the equation $\log_2(x^2 + x) = 2$. Give your answer in exact form.

3 (3 points)   The TAs (Hui, Kelly, and Truman) have discovered a new radioactive element, which they've named 120-ium. They discover that in three hours the element decays to one quarter (1/4) of its original amount. What is the half-life of 120-ium?

4 (6 points)   Suppose the TAs have 15 grams of 120-ium now. Write down an exponential model of how much 120-ium they will have left in t hours.