MATH **124** Quiz **Oct. 13** **Name:**

No books, notes or graphing calcuators. Turn off your cell phones. SHOW ALL YOUR WORK.

*(5)* 1. When Little Sammy was born, his Uncle Sam started a college fund for his nephew and made an initial deposit. Soon, Uncle Sam left to Australia to join the Australian Society of Crocodile Riders and never put another cent into Sammy's fund. Little Sammy never saw his uncle again even though he heard some rumors about Unlce Sam becoming an Honorary Member of the Society. The original paperwork for Sammy's college fund was lost but Sammy kept getting statements every five years which informed him of the current value of his college fund. When his was 10, the statement showed \$8243 on the account. When he was 15 - \$10585.

(a) Assuming that the value of the account grows exponentially, compute the function $f(t)$ which gives the value of Sammy's college fund at the year $t$ from his birth.

(b) What is the initial deposit that Uncle Sam made?

(c) When Sammy turns 18, his fund is way too small to pay for college. On the other hand, a tourist trip to Australia, including a one-way ticket and the first year membership fee for the Australian Society of Crocodile Riders costs \$12000. Find out if Sammy would have enough on his account to follow his uncle legendary steps.

*(5)* 2. (a) Sketch the graph of the function $e^x + 2$. State the domain and range.

(b) The function $\ln(x-2))$ is the inverse to the function $e^x + 2$. Sketch the graph of the function $\ln(x-2)$.

(c) State in words what is the relationship between the graphs of $e^x + 2$ and $\ln(x-2)$.