2. [14 points]
   a. [10 points] Let \( f(c) \) be Lucy’s revenue (in dollars) when she sells \( c \) eggs at the farmers market. Let \( c_0 \) be the number of eggs she sold on Saturday. Write a mathematical expression that completes each of the following statements. All your answers should be in terms of the function \( f \).

   **Solution:**
   
   i) Lucy’s revenue, in dollars, when she sells 25% more eggs than she sold on Saturday is

   \[
   \text{Answer: } f(1.25c_0)
   \]

   ii) Mark is another farmer selling eggs at the market. Mark’s revenue on Saturday was 10 dollars less than Lucy’s revenue that day. On Saturday Mark’s revenue, in dollars, was

   \[
   \text{Answer: } f(c_0) - 10
   \]

   iii) On Wednesday, Lucy sold 10 more eggs than on Saturday. Lucy’s revenue on Wednesday, in dollars, was

   \[
   \text{Answer: } f(c_0 + 10)
   \]

   iv) Let \( g(d) \) be Lucy’s revenue in hundreds of dollars when she sells \( d \) dozen eggs, then

   \[
   g(d) = 0.01f(12d)
   \]

   b. [4 points] Find the equations of the horizontal and vertical asymptotes of each function below. If the given function does not have one of the asymptotes, write “NONE”.

   **Solution:**
   
   i) \( y = 3(0.21)^{-2x} \)

   Horizontal Asymptote: \( y = 0 \)   Vertical Asymptote: NONE

   ii) \( y = 1 + \ln(0.2x + 1) \)

   Horizontal Asymptote: NONE   Vertical Asymptote: \( x = -5 \)