

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 .

- i) Lucy's revenue, in dollars, when she sells 25% more eggs than she sold on Saturday is

Answer: _____

- 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

Answer: _____

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

Answer: _____

- iv) Let $g(d)$ be Lucy's revenue in **hundreds** of dollars when she sells d **dozen** eggs, then

$g(d) =$ _____

- 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".

i) $y = 3(0.21)^{-2x}$

Horizontal Asymptote: _____ Vertical Asymptote: _____

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

Horizontal Asymptote: _____ Vertical Asymptote: _____