Name:

QUIZ – MATH GRADE 11 SL

1. (50%) Given the function f(x) = $-2 \cdot 3^{-x-1} + 6$

   a. (5%) State the domain of the function: _____

   b. (10%) Write the corresponding limit(s) and conclusion about asymptotes:

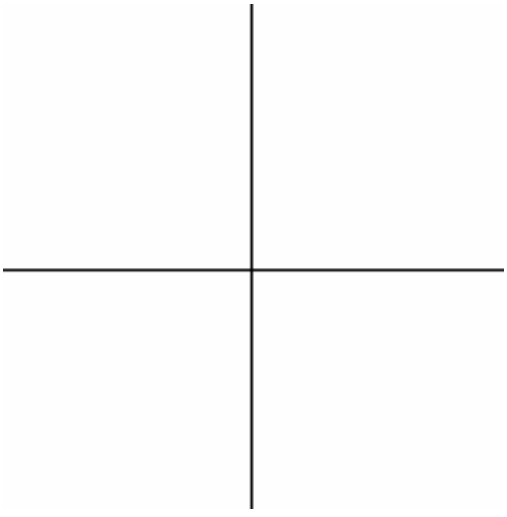
   c. (5%) Find the y intercept: _____

   d. (10%) Find the x intercept: _____

   e. (5%) Sketch the function (including asymptotes and intercepts)

   f. (5%) State the range of the function:_____

   g. (5%) State the interval in which the function increases:_____



2. (50%) Given that the population of fish in a certain lake can be modeled by the function: $N(t) = 4000 \cdot 8^{-\frac{t}{12}} + 50000$, where t is the time in months, t = 0 corresponds to January first.

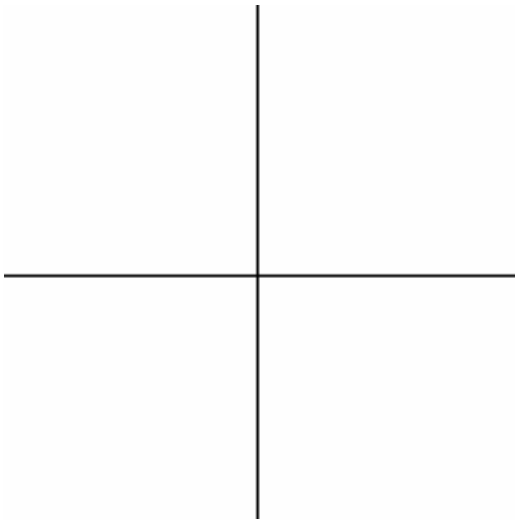
   a. (5%) Write down the population of fish in the beginning of the year: _____

   b. (10%) Find the exact population of fish after 4 months: _____

   c. (10%) After how long the population of fish will be below 51000 ?

   d. (10%) What will be the population of fish after a long time? _____

   e. (10%) Sketch the function (including asymptotes and intercepts), add the corresponding numbers to the scale. Is the population increasing or decreasing?



   f. (5%) Assuming this model is correct, will the population of fish ever be 48000 ? Explain.