MATH 19501 Quiz 13 - Winter 25

Name: _____ EMPLID: _____ Answer all 4 questions.

You must show all of your work as neatly and clearly as possible and indicate the final answer in the provided region for each non-graph question. For all graph questions, you should sketch your graph on the grid provided.

1. (4 points) Use like bases to solve the exponential equation $64(4^{3x}) = 16$. Write your answer in the box below:

$x =$

2. (4 points) Use logarithms to solve the exponential equation $e^{-3x} + 6 = 44$. Leave your solution in terms of the natural logarithm, ln. Write your answer in the box below:

$x =$

3. (4 points) Solve the logarithmic equation $\log_{13}(5n-2) = \log_{13}(8-5n)$ for n. Write your answer in the box below:

$n =$

4. (4 points) The fox population in a certain region has a continuous growth rate of 6 percent per year. It is estimated that the population in the year 2000 was 11600. Find a function $P(t)$ that models the population t years after 2000 ($t = 0$ for 2000). Write your answer in the box below:

$P(t) =$