QUIZ 9 - MATH 111 Friday, November 11

YOUR NAME:_____ George Voutsadakis

Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [3 points] In a habitat, the population of a certain species grew from 54 in 2010 to 250 in 2013. Assuming an exponential increase, create a model for the population $P(t)$ as a function of time t.

2. [3 points] Outline the transformations that take place in producing $g(x) = 2(\frac{1}{3})^{x-2} - 5$, starting from $f(x) = (\frac{1}{3})^x$.

$f(x) = (\frac{1}{3})^x \longrightarrow$ ( )

$\longrightarrow$ ( )

$\longrightarrow$ ( )

3. [3 points] Find the domain of $f(x) = \log_5(1 - 3x)$ and write your answer in interval notation.

4. [3 points] Solve the equation $5^{2x+1} = 12$. Please, give the exact value of the solution; not a decimal approximation.