HOMEWORK 5 - MATH 111
DUE DATE: Monday, October 25
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 1 point. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Use the small table method to roughly sketch the graph of the function $f(x) = \log_{1/2}(x - 3)$.

2. Find the domain of the function $f(x) = \log_{2004} \frac{x^2 - x + 6}{x - 1}$.

3. Solve the equation $\log(x - 1) + \log(x + 2) = 1$.

4. Solve the equation $2^{x^2 - 4x} = \frac{1}{16}$.

5. Solve the equations

    (a) $(\log_3(\log_3(\log_3(x))) = 1$
    (b) $\log(x^2) = (\log x)^2$

6. A bond with a face value of $ 3,000 in 5 years can be purchased now for $ 1,800. What is the simple interest rate?

7. You sign a $ 6,000 note at the bank. The bank charges 10% discount rate. Find the net proceeds if the note that you signed is for 20 months. Also, find the actual interest rate you were charged by the bank.

8. George Bush borrowed $ 5,000 from his friend John Kerry to make home improvements in his ranch house. He repaid the loan 30 months later with simple interest at 5%. Kerry then invested the proceeds in a 5 year certificate of deposit paying 3% compounded quarterly. How much will Kerry have at the end of the 5 year period?[1]

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[1]The problem is fictitious. Any resemblance of names or characters with existing people is purely coincidental.