

YOUR NAME: _____

George Voutsadakis

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

1. Your mom wants to invest an amount in a Certificate of Deposit (COD) so that she be able to cover your little sister's college expenses, which are expected to be around \$50,000 in 10 year's time. If the COD has an annual rate of return of 6% compounded monthly, how much does your mom need to invest now?

2. Combine the following into a single logarithm:

$$\frac{1}{3} \ln x - 5 \ln (y + 2) + 7 \ln y =$$

3. Solve the logarithmic equation

$$\log (x^3 + 7) = \log x + \log (7x + 1).$$