## HOMEWORK 6 - MATH 111

## DUE DATE: Friday, October 31

**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. If  $\ln x = 7$  and  $\ln y = 2$  find  $\ln \left(\frac{\sqrt{x^3}}{y^5}\right)$ .
- 2. Solve the equation  $\log_3(x-3) \log_3(x-5) = 2$ .
- 3. Solve the equation  $\log_{119} (x+2) + \log_{119} (x-8) = 1$ .
- 4. Solve the equation  $\log (x^{16}) = (\log x)^2$ .
- 5. In the central Sierra Nevada of California, the percent of moisture that falls as snow rather than rain is approximated reasonably well by  $p = 86.3 \ln h 680$ , where p is the percent of moisture as snow at an altitude of h feet (with  $3000 \le h < 8500$ ).
  - (a) Graph p.
  - (b) At what altitude is 50 percent of the moisture snow?
- 6. Find the simple interest on a loan of \$10,000 at 3% made on September 1 and due on November 30.
- 7. A friend of yours decided to go back to college. She decides to buy a small car for \$9,000. She intends to borrow the money from a bank with 10% discount rate. If she plans to repay the loan in 5 years what will be the amount of her loan?
- 8. Find the amount of interest earned by a deposit of \$5,000 compounded quarterly at 5% for 10 years.