

HOMEWORK 6 - MATH 111

DUE DATE: Friday, March 14

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 $\ln x = 3$ and $\ln y = 4$ find $\ln\left(\frac{x^2}{\sqrt{y}}\right)$.
2. Solve the equation $\log_2(x - 1) - \log_2(x - 5) = 3$.
3. Solve the equation $\log_{39}(x + 1) + \log_{39}(x - 9) = 1$.
4. Solve the equation $\log(x^4) = (\log x)^2$.
5. The growth of an outpatient surgery as a percent of total surgeries at hospitals is approximated by $f(x) = -1317 + 304 \ln x$, where x represents the number of years since 1900.
 - (a) What does this function predict for the percent of outpatient surgeries in 2004?
 - (b) When did outpatient surgeries reach 50%?
6. Find the simple interest on a loan of \$20,000 at 4% 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 \$7,000. She intends to borrow the money from a bank with 10% discount rate. If she plans to repay the loan in 3 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 4% for 5 years.