

**MATH 234 AL1 QUIZ #7**

TUESDAY, OCTOBER 23RD, 2007, 8AM

Name: \_\_\_\_\_

**Show all work for full credit.**

**Problem 1** (1 pt each). Calculate the following values exactly where  $b > 0$  and  $b \neq 1$ .

(1)  $b^0$

(2)  $\log_b 1$

(3)  $\log_b (b^n)$

(4)  $\log_3 \sqrt{3}$

(5)  $\frac{\ln 9}{\ln 3}$

(6)  $16^{\frac{3}{4}}$

**Problem 2** (2 pts). Suppose that you invest 1000 at a 5% annual interest rate. How long does it take your investment to double if the interest is compounded continuously? (You can leave your answer in terms of a logarithm.)

**Problem 3** (1 pt each). Find the derivatives of the following functions.

(1)  $f(x) = e^{2x+x^2}$

(2)  $g(x) = \ln(x^2 + 1)$