# Quiz #10

**MATH 140, Section K2**
**November 13, 2009**

**Name:** _____

READ AND FOLLOW ALL DIRECTIONS. CIRCLE YOUR FINAL ANSWERS.
SHOW ALL WORK TO RECEIVE FULL CREDIT. NO CALCULATORS.

1. (4 points) Change each exponential expression to an equivalent expression involving a logarithm.
   (a) $a^3 = 2.1$

   (b) $2^x = 7.2$

2. (4 points) Change each logarithmic expression to an equivalent expression involving an exponent.
   (a) $\log_3 2 = x$

   (b) $\log_a 4 = 2$

3. (4 points) Find the exact value of each of the following expressions.
   (a) $\log_2 (2^{-13})$

   (b) $e^{\ln 16}$

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4. (8 points) Write each expression as a sum and/or difference of logarithms. Express powers as factors.

   (a) $2\log_6 u + 3\log_6 v$

   (b) $\log(x^2 - 1) - 2\log(x + 1)$

5. (2 points) EXTRA CREDIT. Does $3^{\log_3(-5)} = -5$? Why or why not?