

Name:

MATH 105 - SEC 001, FALL 2010. QUIZ 6  
TIME LIMIT: 30 MINUTES

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Good luck!

**Problem 1.** Give the definition of a even function

**Problem 2.** Give the definition of an odd function

**Problem 3.** If the graph of  $y = e^x$  is reflected about the  $y$ -axis, what is the formula for the resulting function?

**Problem 4.** The domain of the function  $g(x)$  is  $-2 < x < 7$ . What is the domain of  $g(x - 2)$ .

**Problem 5.** Let  $m(n) = n^2 + 3n$ . If the graph of  $m(n)$  is translated to the right by 3 units, what is the formula for the resulting function? Simplify your answer as much as you can.

**Problem 6.** Express the following in terms of  $x$  without natural logs. Give EXACT answers, and simplify them as much as you can.

a)  $\log\left(\frac{10}{1000^{5x}}\right)$

b)  $\log\left(\frac{\sqrt{13^x}}{10^{-2x+1}}\right)$

c)  $e^{x \ln(10) - x}$

d)  $e^{5 \ln(x) - 6} + 3 \log(10^{2x}/100)$

**Problem 7.** Find the EXACT answer for the equation:

$$11 \cdot 3^x = 5 \cdot 7^x$$

**Problem 8.** In 1991, the body of a man was found in melting snow in the Alps of Northern Italy. An examination of a tissue sample revealed that 46 % of the carbon-14 present in his body at the time of his death had decayed. The half-life of the carbon-14 is approximately 5728 years. How long ago did this man die?

**Problem 9.** Graph the following function, and label all asymptotes and intercepts.

$$y = \log(x - 4) + 3$$

Problem 10 on next Page

**Problem 10.** Find the hydrogen ion concentration  $[H^+]$  for the baking soda used to make donuts that you may be eating now, with a pH of 8.3. Hint:  $\text{pH} = -\log[H^+]$ .