

Name:

11/29/06

Math 111 Practice Quiz

1. True or False.

(a) The functions  $f$  and  $g$  are the same where  $f(x) = \ln(x^2)$  and  $g(x) = 2\ln(x)$ .

(b) If  $a$  and  $b$  are positive real numbers then  $\log_3(a) - \log_3(b) = \frac{\log_3(a)}{\log_3(b)}$ .

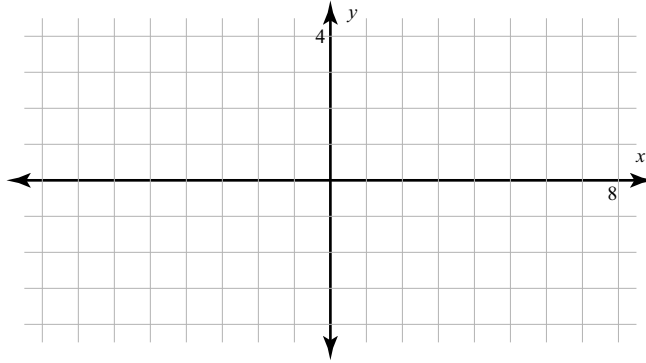
2. Fill in the blank.  $6 \log_9\left(\frac{1}{3}\right) = \underline{\hspace{2cm}}$

3. Fill in the blank. If  $f(x) = \frac{3}{\ln(x+4)}$  then the domain of  $f$  is  $\underline{\hspace{2cm}}$

4. Suppose you invest \$23 into an account earning 4% annual interest compounded continuously. When will the account be worth \$40.

[be sure to include units.]

5. Sketch a graph of  $f(x) = \log_3(x + 2)$



6. Suppose  $f(x) = 3 \log(x + 2) - 9$ . Find  $f^{-1}(x)$ .

7. Find the dimensions of the rectangle with maximal area such that the sum of the length and twice the width is 12.

8. Solve for  $x$ .

$$\log_2(x + 2) + \log_2(x) = 3$$