

Math 173 – Quiz #3

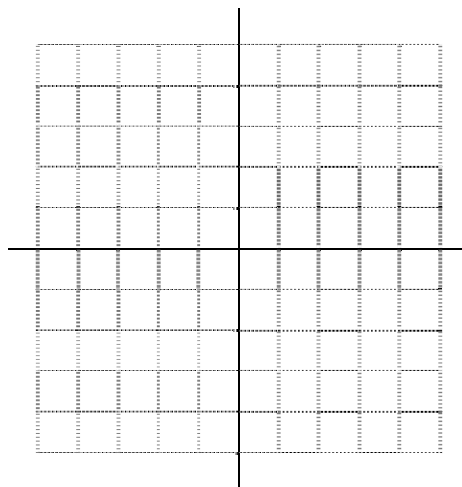
February 26, 2016
Instructor: Patricia Wrean

Name: _____

Total: 40 points

1. Sketch the graph of the following function. Include at least two accurate points on your sketch and also indicate the location of any asymptotes. (5 points)

$$f(x) = 2^{x-3}$$



2. Find each of the following, if possible. Give exact answers. (4 points)

a) $\log_4(-16)$

b) $\log_4\left(\frac{1}{16}\right)$

c) $\log_2 \sqrt[3]{2}$

d) $\log_8\left(\frac{1}{2}\right)$

3. Consider the following functions: $f(x) = \frac{1-x}{x}$, $f^{-1}(x) = \frac{1}{x+1}$ (6 points)

a) domain of $f(x)$: _____

range of $f(x)$: _____

b) Use composition of functions to show that the functions are inverses of each other.

4. Find the inverse of the following function. (3 points)

$$f(x) = \ln(x+2)$$

inverse: _____

5. Solve. Give exact answers.

(12 points)

a) $2^{3x-7} = 32$

b) $\log(x-7) + \log(x-4) = 1$

c) $2^{3x} = e^{x-5}$

6. Simplify. (4 points)

a) $\ln(x^2 - 9) - \ln(x - 3)$

b) $3^{2\log_3 5x}$

7. You are taking a road trip in a car without air conditioning, and the temperature in the car is 38°C . You buy a cold pop at a gas station. The initial temperature of the pop is 5°C , and after 15 minutes in the car, the pop's temperature is 16°C . What will be the temperature of the pop when it's been in the car for 25 minutes? (6 points)