Mathematics 3200

Chapter 8 Test

May 20, 2014 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part 1: Answer each question by circling the letter of the best answer.

1. Which represents the inverse of the graph of  shown below?



A. B.



C. D.

2. What is the domain of ?

(A) 

(B) 

(C) 

(D) 

3. What is the new equation if the graph of  is reflected in the *x*-axis?

(A) 

(B) 

(C) 

(D) 

4. Which statement describes the transformations which have been applied to to obtain the graph of ?

(A) vertical stretch of 5, reflection in the x-axis, horizontal stretch of , horizontal translation of 3 left and vertical translation of 2 down

(B) vertical stretch of 5, reflection in the x-axis, horizontal stretch of , horizontal translation of 3 right and vertical translation of 2 down

(C) vertical stretch of 5, reflection in the y-axis, horizontal stretch of , horizontal translation of 3 left and vertical translation of 2 down

(D) vertical stretch of 5, reflection in the y-axis, horizontal stretch of , horizontal translation of 3 right and vertical translation of 2 down

5. What is the equation of the asymptote for the graph of ?

(A)

(B)

(C)

(D)

6. Which is equivalent to ?

(A) 

(B) 

(C) 

(D) 

7. Evaluate: .

(A) 

(B) 1

(C) 

(D) 

8. What is the exact value of  for ?

(A) 

(B) 

(C) 

(D) 

9. Solve for: .

(A) 4

(B) 

(C) 16

(D) 

10. What is (are) the exact value(s) of  for ?

(A) 

(B) 

(C) 2

(D) 4

Part 2 Constructed Responses

Answer each question in the space provided, showing all necessary workings.

11. The growth of a new social networking site can be modeled by the exponential function, where N is the number of users after *t* days.

a) Write the equation of the inverse.

b) How long will it take, to the nearest day, for the number of users to exceed one million?

12. Determine the equation of the transformed image of after it is reflected in the *x*-axis and translated 6 units up.

13. Write the expression as a single logarithm in simplest form and state any restrictions on the variable.

14. Solve for x:

15. Sound intensity, , in decibels is defined as , where is the intensity of sound measured in watts per square meter and is , the threshold of hearing.

A fire truck siren has a decibel level of 118 dB and city traffic has a decibel level of 85 dB. How many times as loud as city traffic is the fire truck siren?

16. Solve for x: