

Student: _____
Date: _____

Instructor: Jessica Robertson
Course: PreCalculus

Assignment: Unit 5 Review (Days 11 & 12)

1. Evaluate each expression using the values given in the table.

x	-3	-2	-1	0	1	2	3
f(x)	10	8	6	4	2	0	-2
g(x)	-4	-1	0	3	0	-1	-4

- a. $(f \circ g)(1)$ b. $(f \circ g)(2)$ c. $(g \circ f)(2)$
d. $(g \circ f)(3)$ e. $(g \circ g)(1)$ f. $(f \circ f)(3)$

a. $(f \circ g)(1) =$ _____

b. $(f \circ g)(2) =$ _____

c. $(g \circ f)(2) =$ _____

d. $(g \circ f)(3) =$ _____

e. $(g \circ g)(1) =$ _____

f. $(f \circ f)(3) =$ _____

2. Given $f(x) = 8x$ and $g(x) = 3x^2 + 6$, find the following expressions.

(a) $(f \circ g)(4)$ (b) $(g \circ f)(2)$ (c) $(f \circ f)(1)$ (d) $(g \circ g)(0)$

(a) $(f \circ g)(4) =$ _____ (Simplify your answer.)

(b) $(g \circ f)(2) =$ _____ (Simplify your answer.)

(c) $(f \circ f)(1) =$ _____ (Simplify your answer.)

(d) $(g \circ g)(0) =$ _____ (Simplify your answer.)

3. If $f(x) = 5x^3 - 4x^2 + 9x - 8$ and $g(x) = 0$, find $(f \circ g)(x)$ and $(g \circ f)(x)$.

What is $(f \circ g)(x)$?

$(f \circ g)(x) =$ _____

What is $(g \circ f)(x)$?

$(g \circ f)(x) =$ _____

4. For the following function, determine whether the function is one-to-one.

$\{(4,6), (3,9), (-7,14), (6,-5)\}$

Is the function one-to-one?

- No
 Yes

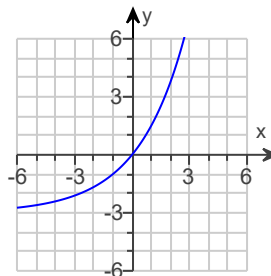
5. For the function below, determine whether the function is one-to-one.

$\{(8,8),(9,9),(10,19),(11,70)\}$

Is the function one-to-one?

- No
 Yes

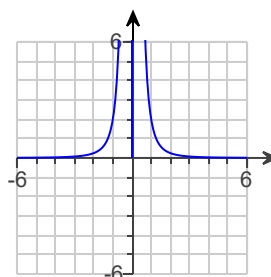
6. The graph of a function f is given. Use the horizontal-line test to determine whether f is one-to-one.



Is f one-to-one?

- Yes
 No

7. The graph of a function f is given. Use the horizontal-line test to determine whether f is one-to-one.



Is f one-to-one? Choose the correct answer below.

- No
 Yes

8. Find the inverse of the one-to-one function. State the domain and the range of the inverse function.

$\{(-8,6), (-7,15), (-6,13), (-5,10), (-4,7)\}$

The inverse function is {_____}.

(Type an ordered pair. Use a comma to separate answers as needed.)

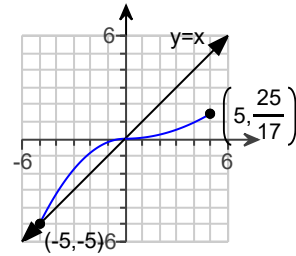
The domain of the inverse function is {_____}.

(Use a comma to separate answers as needed.)

The range of the inverse function is {_____}.

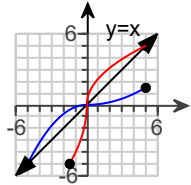
(Use a comma to separate answers as needed.)

9. The graph of a one-to-one function is shown to the right.
 Draw the graph of the inverse function f^{-1} .

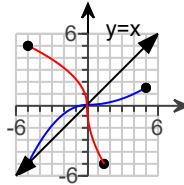


Choose the correct graph of the inverse function f^{-1} below.

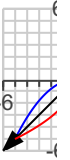
A.



B.



C.



10. Solve the equation.

$$2^{-x} = 4$$

The solution set is $\{\underline{\hspace{2cm}}\}$.

(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

11. Change the exponential statement to an equivalent statement involving a logarithm.

$$125 = 5^3$$

The equivalent logarithmic statement is $\underline{\hspace{2cm}}$. (Type an equation.)

12. Change the logarithmic statement to an equivalent statement involving an exponent.

$$\log_2 16 = x$$

The equivalent exponential statement is $\underline{\hspace{2cm}}$. (Type an equation.)

13. Evaluate the expression without using a calculator.

$$\log_7 1$$

$\log_7 1 = \underline{\hspace{2cm}}$

(Type an integer or a simplified fraction.)

14. Find the domain of the function.

$$g(x) = \ln(x + 7)$$

The domain of g is $\underline{\hspace{2cm}}$.

(Type your answer in interval notation.)

15. Solve the following equation.

$$\log_2 x = 4$$

The solution set is $\{\underline{\hspace{2cm}}\}$.
(Simplify your answer.)