

Online Homework System

Assignment Worksheet

12/6/15 - 10:51 AM

Name: _____

Class: Post University - College Algebra
(MAT 120.89 MOD2 (Humberd) 2015)
(1qlis0a)

Class #: _____

Section #: _____

Instructor: Maple T.A. Administrator

Assignment: Unit 7 Exam

Question 1: (1 point)

If y and z are inverse functions and $y(-2) = 6$, what is $z(7)$?

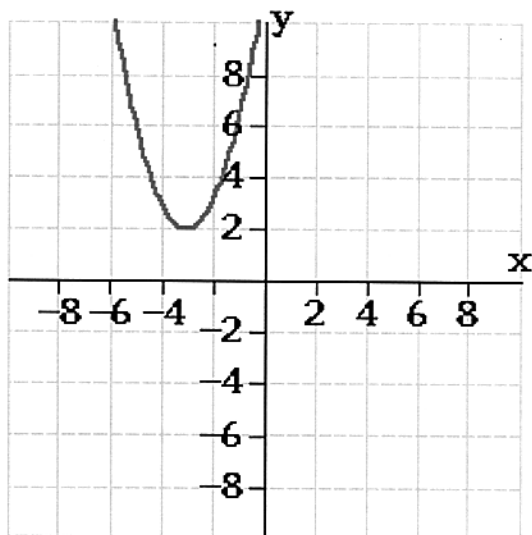
(a) 7 (b) -2 (c) 1

(d) cannot be determined

(e) 6

Question 2: (1 point)

Choose any **false** statements regarding the graph.



Select all that apply.

- (a) The graph passes the vertical line test.
- (b) The graph passes the horizontal line test.
- (c) The graph is a function that does not have an inverse function.
- (d) The graph is a function.
- (e) The graph is a function that has an inverse function.
- (f) The graph is a one-to-one function.

Question 3: (1 point)

If the two functions are inverses, which of the following statements correctly verifies this?

$$f(x) = \frac{8x+5}{4} \text{ and } g(x) = \frac{4x+5}{8}$$

Select all that apply.

(a)
$$g(f(x)) = g\left(\frac{4x+5}{8}\right) = \frac{8\left(\frac{4x+5}{8}\right)+5}{4} = x$$

(b) The functions f and g are not inverses.

(c)
$$f(g(x)) = f\left(\frac{8x+5}{4}\right) = \frac{4\left(\frac{8x+5}{4}\right)+5}{8} = x$$

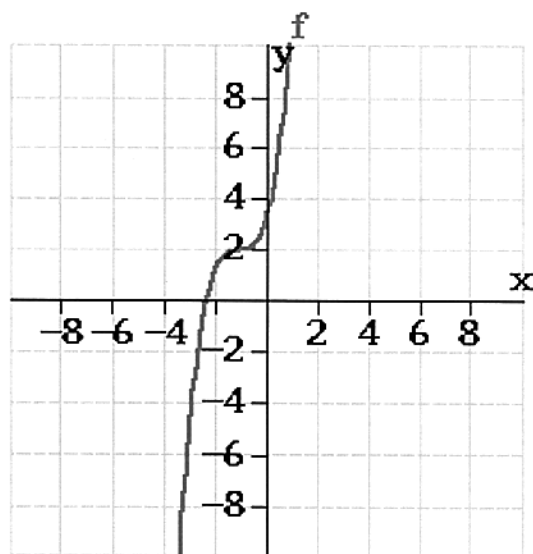
(d)
$$f(g(x)) = f\left(\frac{4x+5}{8}\right) = \frac{8\left(\frac{4x+5}{8}\right)+5}{4} = x$$

(e)
$$g(f(x)) = g\left(\frac{8x+5}{4}\right) = \frac{4\left(\frac{8x+5}{4}\right)+5}{8} = x$$

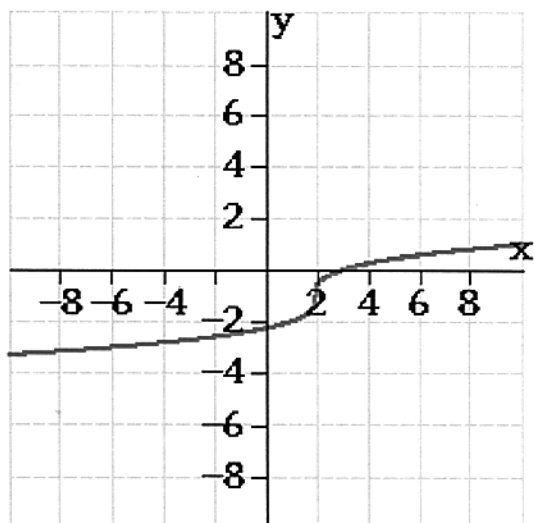
(f) The graphs of f and g are reflections over the line $y = x$.

Question 4: (1 point)

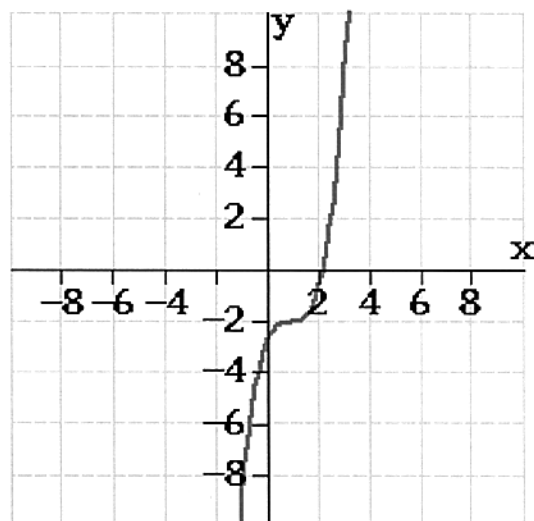
Identify the graph of the inverse function of f , if it exists.



(a)

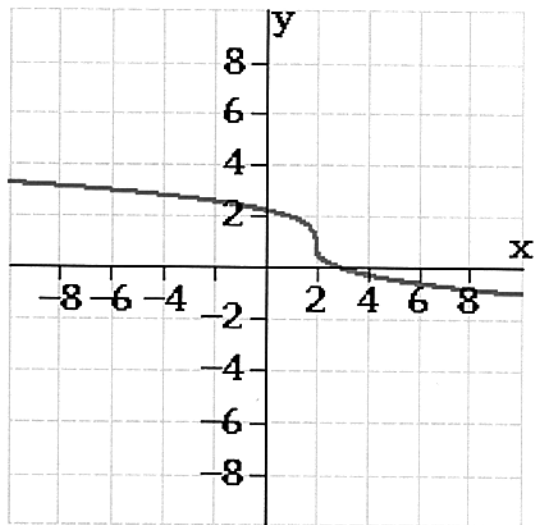


(b)

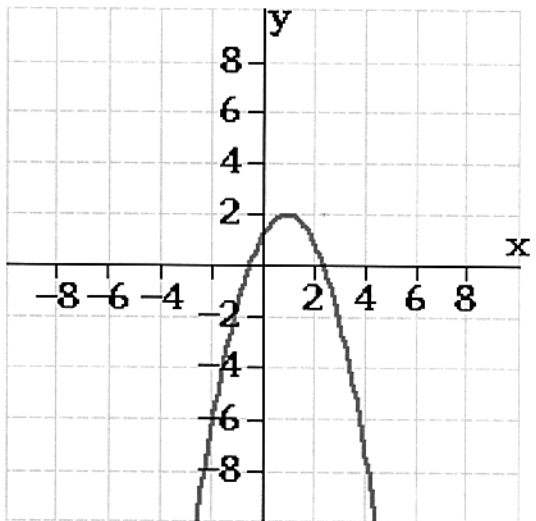


(c) The graph is a function that does not have an inverse function.

(d)



(e)



Question 5: (1 point)

Find the inverse of $f(x) = \frac{10+5x}{7}$, if it exists.

Enter any noninteger coefficient as a fraction. If there is no inverse, enter "none".

$$f^{-1}(x) = \underline{\hspace{2cm}}$$

Question 6: (1 point)

Find the inverse of $f(x) = \sqrt{4x-4}$, if it exists.

Enter any noninteger coefficient as a fraction. If there is no inverse, enter "none".

(a) The inverse function is $f^{-1}(x) = \underline{\hspace{2cm}}$.

The domain of the inverse is:

(a) $x \geq 0$

(b) $x \geq 1$

(c) $x \leq -1$

(d) all real numbers.

Question 7: (1 point)

Which of the following are exponential functions?

Select all that apply.

(a) $f(x) = \left(\frac{8}{5}\right)^x$

(b) $f(x) = 1^x$

(c) $f(x) = \pi^{6x}$

(d) $f(x) = (-3)^x$

(e) $f(x) = 0.8^{x+3}$

(f) $f(x) = 3^{5x}$

(g) $f(x) = x^6$

(h) $f(x) = -(3)^x$

Question 8: (1 point)

Evaluate the exponential function $f(x) = \left(\frac{1}{20}\right)^{-x}$.

Enter the exact answer. Do not enter a decimal approximation. Enter any radical, fractional terms, or factors in simplest form.

$f(3) =$ _____

$f(-3) =$ _____

$f\left(\frac{1}{2}\right) =$ _____

Question 9: (1 point)

A credit union client deposits \$700 in an account earning 2.5% interest, compounded annually. What will the balance of the account be at the end of 33 years?

Enter the answer in dollars and cents, and round to the nearest cent, if needed. Do not include the dollar sign. For example, if the answer is \$0.61, only the number 0.61 should be entered.

Balance $\approx$ \$ _____ after 33 years.

Question 10: (1 point)

Complete the table for the function $f(x) = 0.3e^x$.

If the answer is not an integer, enter it either as a fraction or as a decimal rounded to the nearest hundredth, if needed.

x	$f(x)$
-2	_____
-1	_____
0	_____
1	_____
2	_____

Question 11: (1 point)

A certain type of bacteria grows according to the function $f(t) = 1,400e^{0.1802t}$, where $f(t)$ is the number of bacteria present after t hours.

Find the number of bacteria present after 8 hours.

Enter the answer as an integer. Round to the nearest whole unit, if needed.

The number of bacteria is _____.

Question 12: (1 point)

Find the value of $\log_{10} 10,000$.

$\log_{10} 10,000 =$ _____

Question 13: (1 point)

Write $\left(\frac{3}{4}\right)^3 = \frac{27}{64}$ in logarithmic form.

(a) $\log_3 \frac{27}{64} = 3$

(b) $\log_3 \frac{27}{3} = \frac{3}{4}$

(c) $\log_{\frac{27}{64}} 3 = 4$

(d) $\log_{\frac{3}{4}} 3 = \frac{27}{64}$

(e) $\log_3 \frac{3}{4} = \frac{27}{64}$

(f) $\log_{\frac{27}{64}} \frac{3}{4} = 3$

Question 14: (1 point)

Write $\log_{\frac{5}{2}} \frac{25}{4} = 2$ in exponential form.

(a) $\left(\frac{5}{2}\right)^{\frac{25}{4}} = 2$

(b) $\left(\frac{5}{2}\right)^2 = -\frac{25}{4}$

(c) $\left(\frac{25}{4}\right)^2 = \frac{5}{2}$

(d) $\left(\frac{5}{2}\right)^2 = \frac{25}{4}$

(e) $\left(\frac{5}{2}\right)^2 = \frac{4}{25}$

(f) $\left(\frac{2}{5}\right)^2 = \frac{25}{4}$

Question 15: (1 point)

Find the value of $\log_3 \frac{1}{81}$.

$\log_3 \frac{1}{81} = \underline{\hspace{2cm}}$

Question 16: (1 point)

Find the value of $\log_5 5^3$.

$\log_5 5^3 = \underline{\hspace{2cm}}$

Question 17: (1 point)

Evaluate $3 \log 1 + 7 \cdot 10^{\log 7}$ without using a calculator.

$$3 \log 1 + 7 \cdot 10^{\log 7} = \underline{\hspace{2cm}}$$

Question 18: (1 point)

Use a calculator to evaluate $(\log 18) \times (\ln 20)$.

If the answer is not an integer, enter it as a decimal rounded to the nearest hundredth, if needed.

$$(\log 18) \times (\ln 20) = \underline{\hspace{2cm}}$$

Question 19: (1 point)

The Richter scale magnitude, R , of an earthquake of intensity I is defined as $R = \log\left(\frac{I}{I_0}\right)$, where I_0 is a small threshold intensity. Find the magnitude of an earthquake with intensity $70,000,000I_0$.

If the answer is not an integer, enter it as a decimal rounded to the nearest hundredth, if needed.

$$\text{magnitude} = \underline{\hspace{2cm}}$$
