WeBWorK Assignment Homework02 is due : 05/21/2016 at 04:03pm EDT.

Reference: Axler, Precalculus, 2nd ed, Sections 1.3, 1.4, and 1.5

Here's the list of functions and symbols that WeBWorK understands.

1. (1 pt) Let $m(x) = \frac{1}{x^7}$. Decide whether m(x) is an even function, an odd function, or neither. Be sure you can show your work on paper to support your answer.

- A. Even
- B. Odd
- C. Neither

2. (1 pt) Let $e(x) = x^4 + 2$.

Decide whether e(x) is an even function, an odd function, or neither. Be sure you can show your work on paper to support your answer.

- A. Even
- B. Odd
- C. Neither





(click on image to enlarge)

On a separate piece of paper, sketch an accurate graph of the function y = -2f(-x). Which (if any) of the graphs below matches the graph you drew?







(click on image to enlarge)

Find a possible formula for the transformations of f(x)shown below:



(click on image to enlarge)

y = _____

5. (1 pt) Suppose the domain of the function g(x) is -8 < x < 6. What is the domain of the function g(x-5)?

6. (1 pt) Suppose $f(x) = -2x^7 + 8x$. (a) Then f(-x) =_____ You must simplify your answer as much as possible. (b) For all x, f(-x) =

• A. f(x)

• B.
$$-f(x)$$

• C. None of the above

(c) Is f an even function, an odd function, or neither even nor odd?

- A. Even
- B. Odd
- C. Neither

7. (1 pt) Suppose $f(x) = 10x^7 - 7x$. (a) Then f(-x) =_____ You must simplify your answer as much as possible. (b) For all x, f(-x) =

- A. f(x)
- B. -f(x)
- C. None of the above

(c) Is f an even function, an odd function, or neither even nor odd.

- A. Even
- B. Odd
- C. Neither

8. (1 pt)

Let f(x) be given by the (large) graph. On a piece of paper, graph and label each function listed below. Then, match each formula with its graph from the list A-F below.

?
$$y = -2 - f(x)$$

? $y = f(-x)$
? $y = -f(-x)$
? $y = -f(x-1)$
? $y = -f(x)$
? $y = f(-x) + 3$



y = f(x)



(Click on a graph to enlarge it)

9. (1 pt) (a) Complete the table below so that the function f(x) is EVEN. (f(x) should be defined for all values of the domain shown.)

X	-3	-2	-1	1	2	3
f(x)	-7		-2		-6	

(b) Complete the table below so that the function g(x) is ODD. (g(x) should be defined for all values of the domain shown.)

х	-3	-2	-1	0	1	2	3
g(x)	-7		-2			-6	

(*NOTE:* There is now an extra value you need to determine when x = 0)

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10. (1 pt)

(a) Find an equation for y = g(x) in terms of the function y = f(x). g(x) =_____

(b) Find an equation for y = h(x) in terms of the function y = f(x). h(x) =_____

(c) Find an equation for y = j(x) in terms of the function y = f(x). j(x) =_____











11. (1 pt) Find an equation for g(x) in terms of the function f(x). For example, g(x) = 10f(9x+8) + 7.

g(x) =_____







Graph of y = g(x)

12. (1 pt)

Let f(x) be given by the (large) graph to the right. On a piece of paper, graph and label each function listed below. Then, match each formula with its graph from the list A-I below.

?
$$y = \frac{1}{3}f(x)$$

? $y = 2f(x)$
? $y = f(x-2) + 1$
? $f(-x)$
? $y = -2f(x)$

3



$$y = f(x)$$



(Click on a graph to enlarge it)

13. (1 pt) Fill in the missing values in the tables below given that w(t) = v(u(t)).

t	u(t)	v(t)	w(t)
0	4	6	
2			4
4	2	2	8
6		4	0
8	0	0	

14. (1 pt) Use the table of values for the functions p(x) and q(x) below to complete the tables for the composite functions defined in parts (a) and (b):

x	0	1	2	3	4	5
p(x)	2	3	4	5	0	1
q(x)	4	1	0	3	5	2

(a) Complete the table of values for the composite function r(x) = p(q(x)) at x = 0, 1, 2, 3, 4, 5

х	0	1	2	3	4	5
r(x)						

(b) Complete the table of values for the composite function s(x) = q(p(x)) at x = 0, 1, 2, 3, 4, 5.

x	0	1	2	3	4	5
s(x)						

15. (1 pt) Let $f(x) = x^2 + 3$ and $h(x) = \sqrt{4x}$. Find a formula for f(h(x)) =____

16. (1 pt) Let $f(x) = x^2 + 3$, $g(x) = \frac{1}{x-8}$, and $h(x) = \sqrt{2x}$. Find a formula for g(f(h(x))) =

17. (1 pt) Decompose the function below into u(v(x)). In each part, based on the function v(x) given, find the corresponding u(x) needed to decompose the function.

$$y = \frac{1 + x^3}{4 + x^3}$$
(a) $v(x) = x^3, u(x) =$ _____(b) $v(x) = x^3 + 1, u(x) =$ ______

18. (1 pt) Let $f(x) = \sqrt{9-4x}$.

Which of the following decompositions of f(x) = p(q(x))into a pair of functions p(x) (the outside function) and q(x) (the inside function) is/are correct ? Select all that apply if more than one is appropriate.

- A. p(x) = 9 4x and $q(x) = \sqrt{x}$
- B. $p(x) = \sqrt{-4x}$ and q(x) = 9 + x
- C. $p(x) = \sqrt{-x}$ and q(x) = 4x 9
- D. $p(x) = \sqrt{x}$ and q(x) = 9 4x
- E. $p(x) = \sqrt{9+x}$ and q(x) = 4x

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- F. $p(x) = \sqrt{9-x}$ and q(x) = 4x
- G. All of the above
- H. None of the above

19. (1 pt) Consider the function g(x) represented by the table below:

x	-6	-4	-2	0	2	4	6
g(x)	4	-4	2	6	-6	-2	0

Complete the table of values for the INVERSE, $g^{-1}(x)$, in the table below:

x	-6	-4	-2	0	2	4	6
$g^{-1}(x)$							

20. (1 pt) Suppose

$$f(x) = 3 + \frac{x + (-1)}{x + 1}$$

Evaluate

 $f^{-1}(6) =$ _____ $[f(6)]^{-1} =$ _____ $f(6^{-1}) =$ _____

21. (1 pt) Suppose $f(x) = 1x^2 + 8$ with the domain of f being the set of positive numbers.

Evaluate $f^{-1}(9) = _$

The domain of f^{-1} , using interval notation, is

A formula for
$$f^{-1}(y)$$
 is $f^{-1}(y) = f^{-1}(y)$

 $f^{-1}(y) =$ _____

22. (1 pt) Find the inverse function of $h(x) = 5(x-9)^3$. $h^{-1}(x) =$ _____

23. (1 pt) Let
$$r(x) = \frac{8x-7}{3x+9}$$
. Find and simplify $r^{-1}(x) = \underline{\qquad}$

24. (1 pt) Find the inverse function (if it exists) of $h(x) = 2x^4 - 5$. If the function is not invertible, enter **NONE**. $h^{-1}(x) =$ _____

(Write your inverse function in terms of the independent variable x.)

25. (1 pt) Find the inverse function (if it exists) of $h(x) = \frac{x}{6x+7}$. If the function is not invertible, enter **NONE** . $h^{-1}(x) =$ _____

(Write your inverse function in terms of the independent variable x.)

26. (1 pt) Let C = f(q) = 325 + 0.2q give the cost in dollars to manufacture q kg of a chemical.

a) Which of the following statement(s) correctly explain the meaning of $f^{-1}(C)$? Check all that apply.

- A. The cost of manufacturing one kg. of the chemical.
- B. The cost of manufacturing *C* kgs. the chemical.
- C. The number of kgs. of the chemical that can be manufactured with *C* dollars.
- D. The number of kgs. of chemical that can be manufactured for each 1 dollar spent.
- E. The number of kgs. of the chemical someone can purchase with *C* dollars.
- F. None of the above

(b) Find a formula for
$$f^{-1}(C) =$$

27. (1 pt) If t = g(v) represents the time in hours it takes to drive to the next town at velocity *v* mph.

Which if the following statement(s) correctly explain the meaning of $g^{-1}(t)$? Check all that may apply.

- A. The velocity in mph of the car if it takes *t* hours to drive to the next town.
- B. The velocity in mph of the car after you have driven for *t* miles.
- C. How many hours it takes to reach a velocity of *t* mph.
- D. The number of hours it takes to drive *t* miles.
- E. The velocity in mph of the car if it takes *t* minutes to drive to the next town.
- F. None of the above

28. (1 pt) Using the figure below match the functions A - H and graphs (I)-(IV).



А	$y = f^{-1}(x)$	В	y = f(x) - 1
С	y = -f(x)	D	y = f(x - 1)
E	y = f(x+1)	F	y = f(x) + 1
G	y = -f(-x)	Η	$y = -f^{-1}(x)$

Enter the letter of each equation under the graph which represents it. There are some functions whose graphs are not shown.



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Given the graphs of f (in blue) and g (in red) above, answer these questions:

- $__1$. What is the value of f at -5?
-2. For what values of x is f(x) = g(x)? Separate answers by a comma.
- ____3. Estimate the solution of the equation g(x) = -4.
- ____4. What is the largest closed interval for which the above graph shows that the function f is decreasing? Enter your answer using interval notation.