

Pre-Calculus

Write your
questions here!

Composition of Functions

$f \circ g =$

$g \circ f =$

Given: $f(x) =$ and $g(x) =$

Find:

$f(g(2)) =$ $(g \circ f)(-4) =$ $f \circ g =$

Given: $f(x) =$ and $g(x) =$

Find:

$f(g(2)) =$ $(f \circ g)(x) =$ $(f \circ g)(0) =$

Decomposition of Functions

$h(x) = f(g(x))$

$h(x) = \sqrt{x^3 + 1}$

$f(x) =$

$g(x) =$

$h(x) = \frac{1}{x^2 + 1}$

$f(x) =$

$g(x) =$

Operations with Functions

ADD			
SUBTRACT			
MULTIPLY			
DIVIDE			

Operations with Functions

Given: $f(x) = 2x^2 - 1$ and $g(x) =$

Find:

$f + g =$	Domain	$f \cdot g =$	Domain
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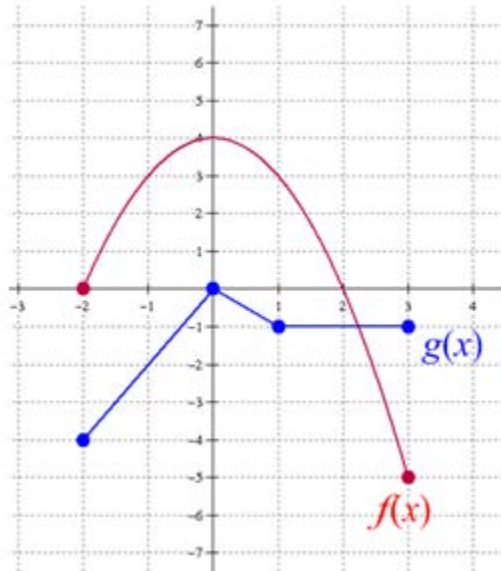
$(f - g)(x) =$	Domain	$\frac{f}{g} =$	Domain
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Given: $f(x) = \sqrt{x}$ and $g(x) = \sqrt{5-x}$

Find:

$(f + g)(2) =$	Domain	$\frac{f}{g} =$	Domain
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Graphically



$$(f + g)(2) =$$

$$(f - g)(-1) =$$

$$(g \cdot f)(0) =$$

$$\left(\frac{f}{g}\right)(-2) =$$

$$(f \circ g)(3) =$$

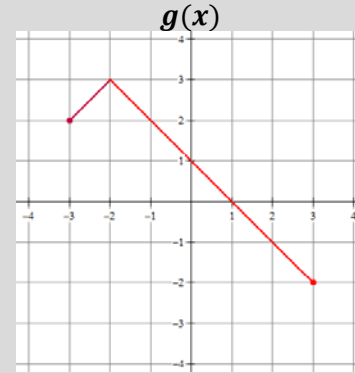
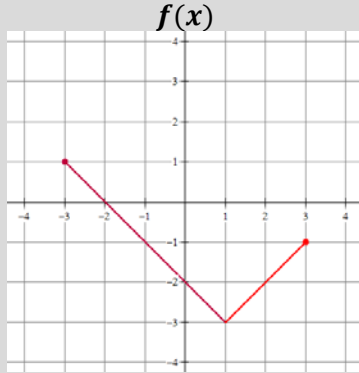
$$f + g$$

SUMMARY:

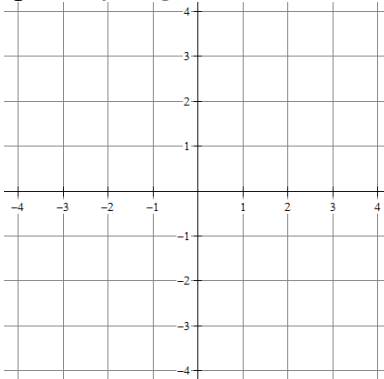
Now,
summarize
your notes
here!



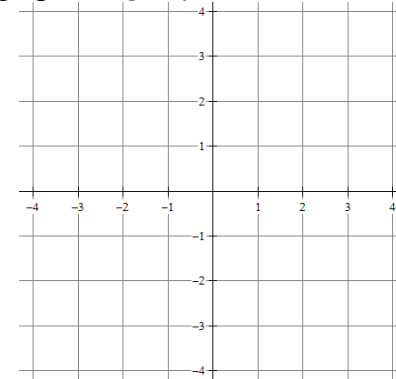
For 1-4, use the graphs of the functions f and g .



1. Sketch a graph of $(f + g)(x)$



2. Sketch a graph of $(g - f)(x)$



2. Find $g(f(2))$

4. Find $(f \circ g)(2)$

Find the indicated function value, if it exists, given $f(x) = 2 - x$ and $g(x) = \sqrt{3 - x}$.

5. $(f + g)(-3)$

6. $(fg)(-1)$

7. $(f \circ g)(-2)$

For 8-10, use the tables of the functions f and g .

x	$f(x)$
-7	5
-2	9
0	0
4	3
6	-10

x	$g(x)$
-7	4
-2	10
0	-2
4	6
6	-3

8. $(f \circ g)(-7)$

9. $f(g(0))$

10. $(f \circ g)(4)$

REVIEW SKILLS

Use the quadratic formula to solve. Express your solution(s) in exact and decimal form.

1. $6b^2 - 22 = 12b$

2. $7r^2 - 8r = -10$

4.3 Operations with Functions

APPLICATION

For 1-2, use $f(x) = \sqrt{x+3}$ and $g(x) = \frac{3}{x}$

1. Find $g(f(2))$.

2. Find $g(f(x))$ and state its domain.

3. Given $f(x) = 2x$ and $g(x) = x + 4$ and $h(x) = 5 - x^3$ find the following.

a. $(f + g)(2)$

b. $h(g(2))$

c. $(f \cdot g)(2)$

d. $\left(\frac{h}{g}\right)(2)$

4. Suppose $f(x) = x^2 + bx - 3$ and $f(2) = -9$. Find b .

5. Given $f(x) = 5x - 2b$ while $g(x) = 4bx$. If $f(g(1)) = 36$ what is $g(f(1))$?

6. Given that $f(x) = cx - 3$ and $g(x) = cx + 5$ are both defined on the set of all real numbers and c is a constant, what is the value of c if $(f \circ g)(x) = (g \circ f)(x)$ for all values of x ?

7. Use the two tables given to fill in the incomplete table.

x	$f(x)$
-2	1
-1	-2
0	4
1	5
2	-1
3	0
4	3
5	2

x	$g(x)$
-2	-1
-1	0
0	3
1	2
2	-2
3	4
4	5
5	1

x	$(f + g)(x)$
-2	
-1	
0	
1	
2	
3	
4	
5	

8. Fill in the following table, given that $h(x) = (f \circ g)(x)$

x	$g(x)$	$f(x)$	$h(x)$
-3	0	7	
-2	-2	-4	
-1	-3	-1	
0	1	3	
1	2	0	
2	2	4	
3	0	9	