

Combinations of Functions; Composite Functions (1.7)

Type	Finding the Domain	Example:
Radical Function: $f(x) = \sqrt[n]{ax+b}$, Where the n th root is EVEN	$ax+b \geq 0$	$f(x) = \sqrt{-x+5}$
Rational Function: $f(x) = \frac{c}{ax+b}$	$ax+b \neq 0$	$f(x) = \frac{3}{x+2}$
Any Other Function:	All real Numbers $(-\infty, \infty)$	$f(x) = x^2 - 7x + 4$

Domains of Functions: Find the domain of the function.

1) $f(x) = 5x + 3$

2) $h(x) = \frac{3x+2}{4x-3}$

3) $g(x) = \sqrt{5x-1}$

4) $f(x) = \frac{\sqrt{x+2}}{x-4}$

Operation	Definition	Example: $f(x) = -3x$ and $g(x) = x-1$
Sum		
Difference		
Product		
Quotient		

Combinations of Functions: Find a) $f+g$, b) $f-g$, c) fg , d) f/g , e) the domains.

5) $f(x) = \sqrt{x+6}$, $g(x) = \sqrt{x-3}$

a)

b)

c)

d)

6) $f(x) = 6x^2 - x - 1$, $g(x) = x - 1$

a)

b)

c)

d)

Composition of Functions
The composition of the function f with the function g is: (<i>substitute the g function in for f</i>)
The composition of the function g with the function f is: (<i>substitute the f function in for g</i>)

Composite Functions: Find a) $f \circ g$, b) $g \circ f$, and c) $(g \circ f)(-2)$

7) $f(x) = 5x - 2$ and $g(x) = -x^2 + 4x - 1$

a)

8) $f(x) = x + 2$ and $g(x) = 4 - x^2$

a)

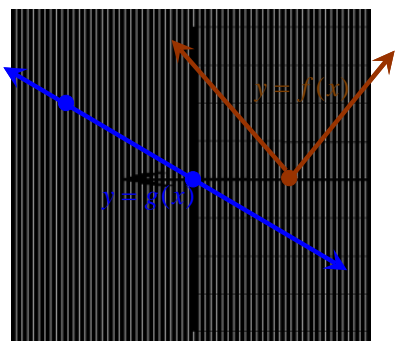
b)

b)

c)

c)

Use the graphs of f and g to evaluate each composite function.



9) $(f \circ g)(0)$

10) $(g \circ f)(1)$