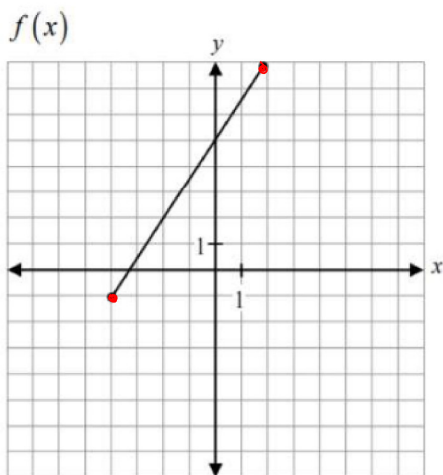


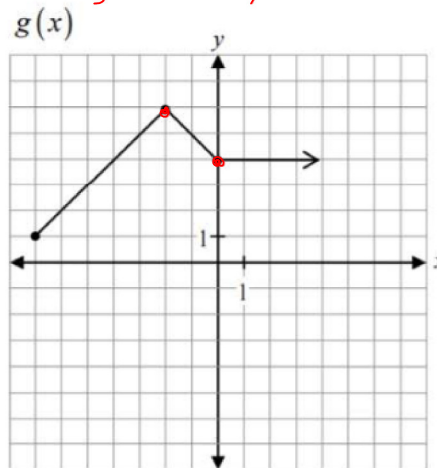
## Lesson 2 Combining Functions Graphically

Ex. 1) Given the graphs of  $f(x)$  and  $g(x)$ , sketch  $h(x) = (g - f)(x)$

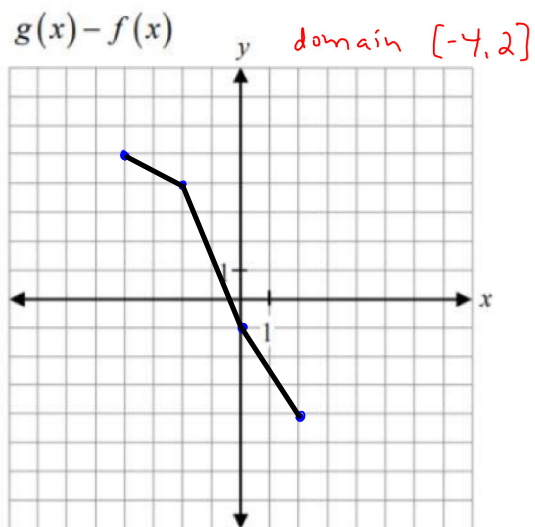
$$h(x) = g(x) - f(x)$$



domain:  $[-4, 2]$



domain:  $[-7, \infty)$



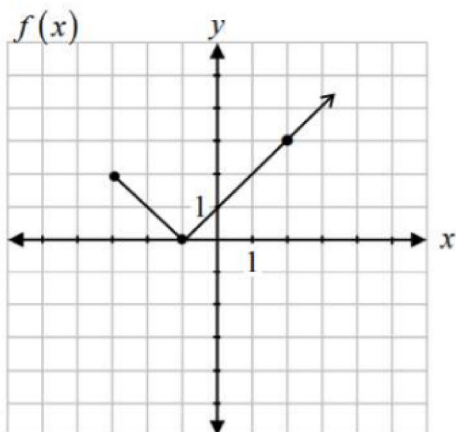
$x$	$g(x)$	$-f(x)$	$(g-f)(x)$	
-4	4	-1	5	$(-4, 5)$
-2	6	2	4	$(-2, 4)$
0	4	5	-1	$(0, -1)$
2	4	8	-4	$(2, -4)$

*Handwritten notes: "y-values" is written above the table, and "plot" is written below the table with arrows pointing to the x and y axes.*

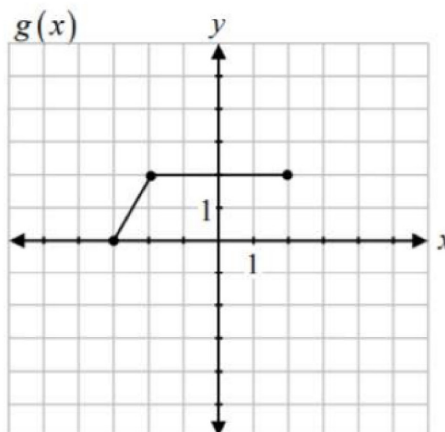
# L2 Combining Functions Graphically.notebook

## Pre-Calculus 12 Enriched Combining Functions

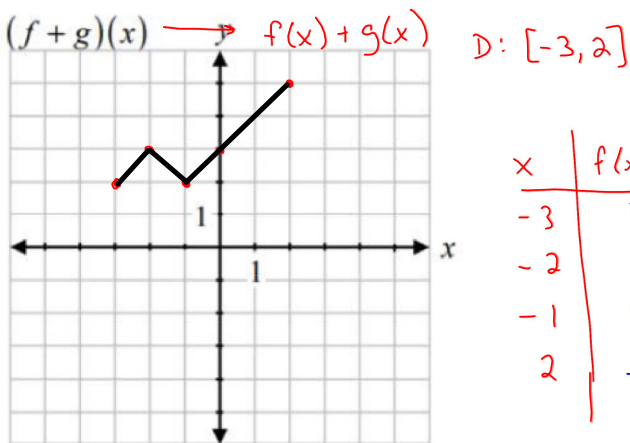
Ex.2) Given the graphs of  $f(x)$  and  $g(x)$ , sketch  $h(x) = f(x) + g(x)$ .



$D: [-3, \infty)$



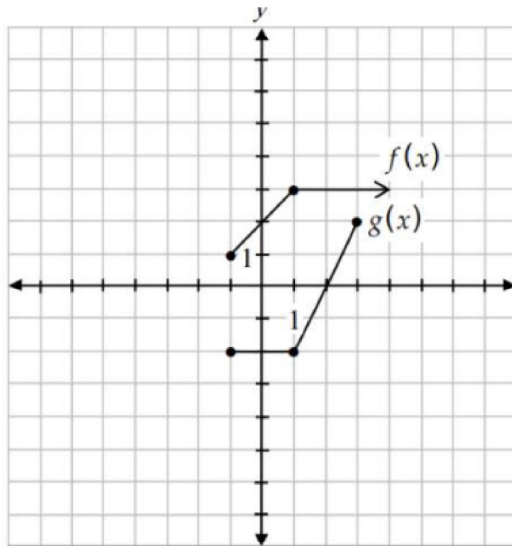
$D: [-3, 2]$



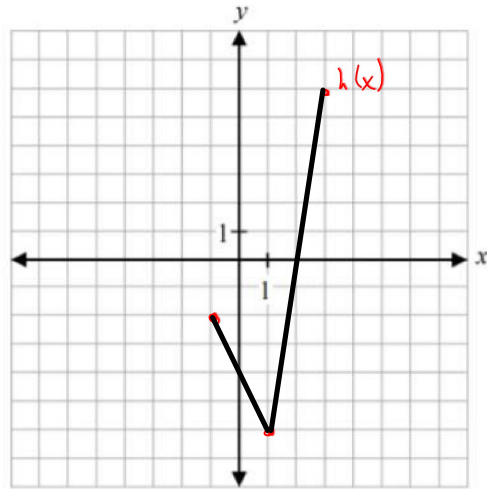
$x$	$f(x)$	$g(x)$	$(f+g)(x)$
-3	2	0	2
-2	1	2	3
-1	0	2	2
2	3	2	5

# L2 Combining Functions Graphically.notebook

Ex. 3) Given the graphs of  $f(x)$  and  $g(x)$ , sketch  $h(x) = f(x) \cdot g(x)$ .



Domain of  $f(x)$  is  $[-1, \infty)$   
 Domain of  $g(x)$  is  $[-1, 3]$

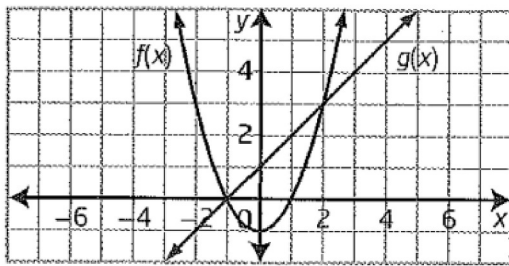


$\therefore$  domain of  $h(x)$  is  $[-1, 3]$

Ex 4) Given the graphs of  $f(x)$  and  $g(x)$ ,

a) sketch the graph of  $h(x) = \frac{f(x)}{g(x)}$  —  $g(x) \neq 0$

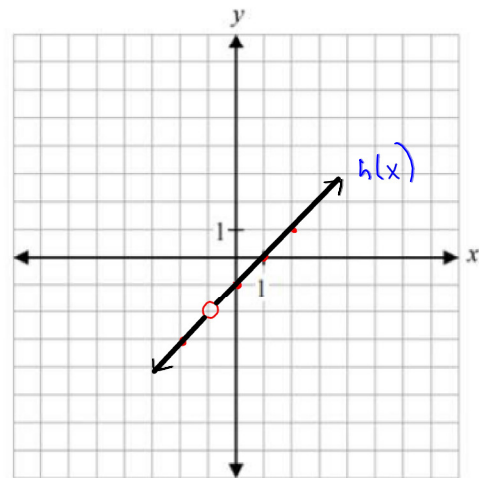
parabola  $x^2$   
 line  $x$   
 = line  $x$



$x$	$f(x)$	$g(x)$	$h(x)$
-2	3	-1	-3
-1	0	0	undefined (hole)
0	-1	1	-1
1	0	2	0
2	3	3	1

b.) Determine  $(f + g)(2)$

$$\begin{aligned} f(2) + g(2) \\ 3 + 3 \\ 6 \end{aligned}$$



$f(x)$  D:  $(-\infty, \infty)$   
 $g(x)$  D:  $(-\infty, \infty)$

domain of  $h(x)$ :  
 $x \neq -1$

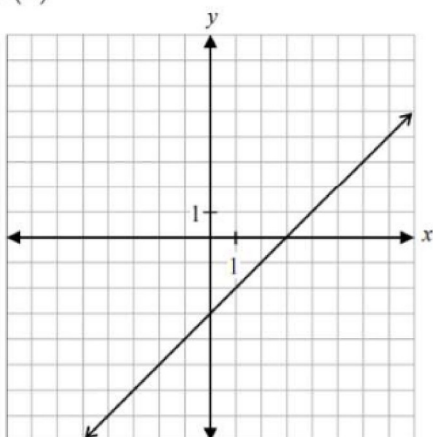
# L2 Combining Functions Graphically.notebook

## Pre-Calculus 12 Enriched Combining Functions

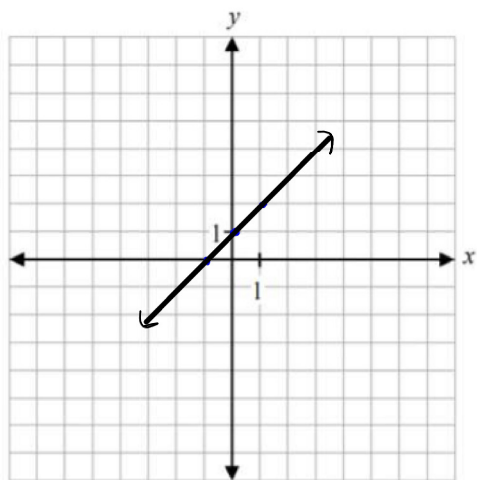
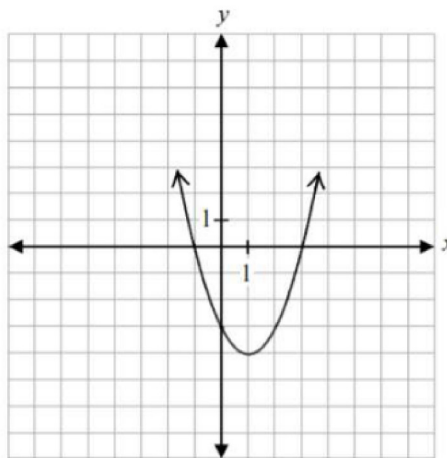
Ex. 5) Given the graphs of  $f(x)$  and  $(f \cdot g)(x)$ , sketch the graph of  $g(x)$ .

$$\hookrightarrow g(x) = \frac{(f \cdot g)(x)}{f(x)}$$

$f(x)$



$(f \cdot g)(x)$



$x$	$(f \cdot g)(x)$	$f(x)$	$g(x)$
-1	0	-4	0
0	-3	-3	1
1	-4	-2	2