**Activity 1.4.1 Putting Functions Together**

1. Given the tables values for f(x) and g(x), find values for f + g, f – g, fg, and f ÷ g for specific values of x.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | ***x*** | ***f(x)*** | | -2 | 0 | | -1 | 2 | | 0 | 4 | | 1 | 6 | | 2 | 8 | | |  |  | | --- | --- | | ***x*** | ***g(x)*** | | -2 | 8 | | -1 | 7 | | 0 | 6 | | 1 | 5 | | 2 | 4 | |  | |  |  | | --- | --- | | ***x*** | ***(f + g)(x)*** | | -2 |  | | -1 |  | | 0 |  | | 1 |  | | 2 |  | | |  |  | | --- | --- | | ***x*** | ***(f - g)(x)*** | | -2 |  | | -1 |  | | 0 |  | | 1 |  | | 2 |  | |
|  |  |  | |  |  | | --- | --- | | ***x*** | ***(fg)(x)*** | | -2 |  | | -1 |  | | 0 |  | | 1 |  | | 2 |  | | |  |  | | --- | --- | | ***x*** | ***(f/g)(x)*** | | -2 |  | | -1 |  | | 0 |  | | 1 |  | | 2 |  | |

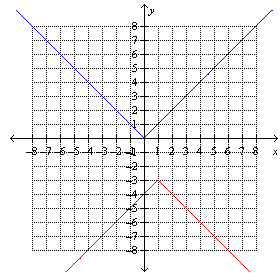
2. The tables in question #1 use the functions f(x) = 2x + 4 and g(x) = -x + 6. Using these two functions, create four graphs that include the following:

1. f, g, and f + g on the same set of axes;
2. f, g, and f – g on the same set of axes;
3. f, g, and fg on the same set of axes;
4. f, g, and f ÷ g on the same set of axes.

|  |  |
| --- | --- |
| a. *(f + g)(x)*  [image] | b. *(f – g)(x)*  [image] |
| c. *(fg)(x)*  [image] | d. *(f/g)(x)*  [image] |

What relationships do you see between the graphs of the original functions and the graphs of the sum, difference, product, and quotient of the functions?

3. Given the functions *f(x)* and *g(x)* below find the graphs of the function f + g, f – g, fg,   
and f ÷ g.



|  |  |
| --- | --- |
| a. *(f + g)(x)*  [image] | b. *(f - g)(x)*  [image] |
| c. *(fg)(x)*  [image] | d. *(f/g)(x)*  [image] |

What relationships do you see between the graphs of the original functions and the graphs of the sum, difference, product, and quotient of the functions?

4. Given pairs of functions f(x) and g(x) symbolically find the functions f + g, f – g, fg, and f ÷ g. For each of the new functions, sketch a graph of the new function, using technology as needed.

|  |  |  |
| --- | --- | --- |
| a. |  | [image] |
| b. |  | [image] |
| c. |  | [image] |
| d. |  | [image] |
| e. |  | [image] |
| f. |  | [image] |
| g. |  | [image] |