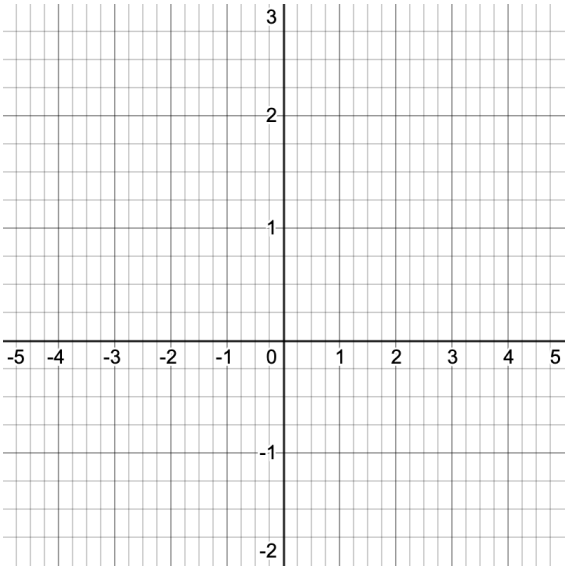
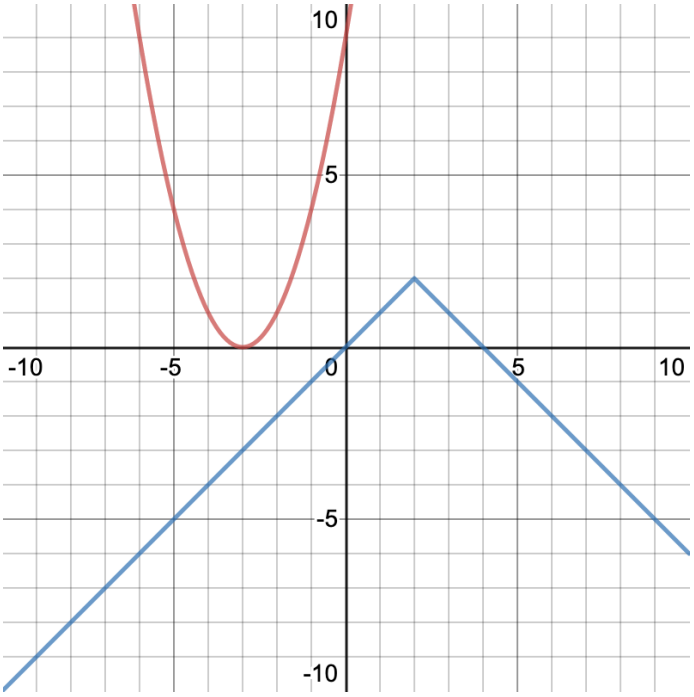
§1.3: Transforming and Combining Functions

1.] Suppose $g(x) = \sqrt{x+3} - 1$. Identify the "parent" function, $f(x)$, that has been transformed, then describe the transformations. Sketch the parent function, $f(x)$, and the transformed function, $g(x)$, on the grid below.



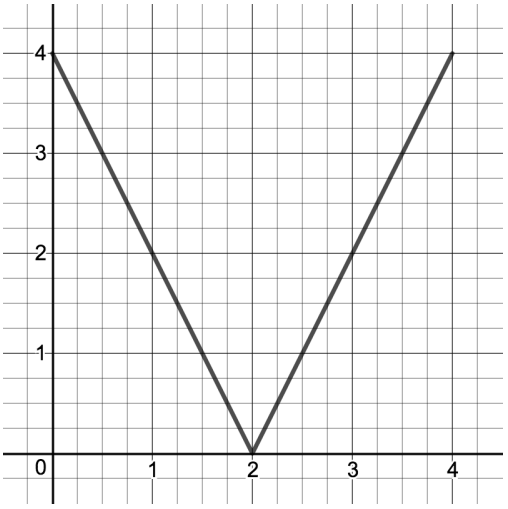
2.] For each of the graphs sketched below, find a possible formula for the function.

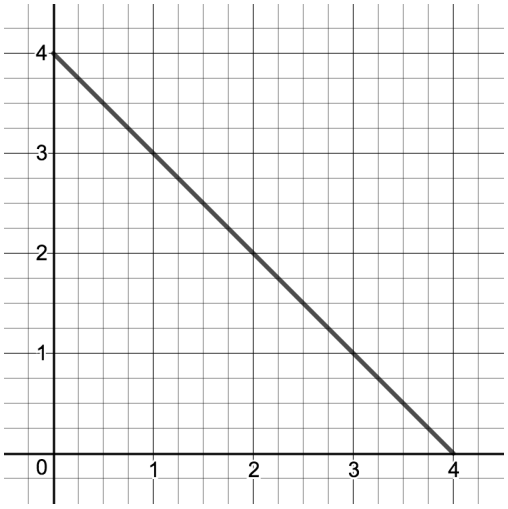


3.] Let $f(x) = 3x$ and $g(x) = x^3 - 8$. Find an expression for $(f + g)(x)$ and $(f/g)(x)$, and determine the domain of each function.

4.] Let $f(x) = x^2$ and $g(x) = x^3 + 1$. Find an expression for $(f \circ g)(x)$ and $(g \circ f)(x)$. Are they the same function?

5.] Use the graph of $f(x)$ (on the left) and the graph of $g(x)$ (on the right) to evaluate the following function values, if they exist:





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

b.) $(f + g)(3) =$

c.) $(fg)(4) =$

d.) $(f/g)(1) =$

e.) $(g/f)(2) =$

f.) $(f \circ g)(2) =$

g.) $(g \circ f)(2) =$