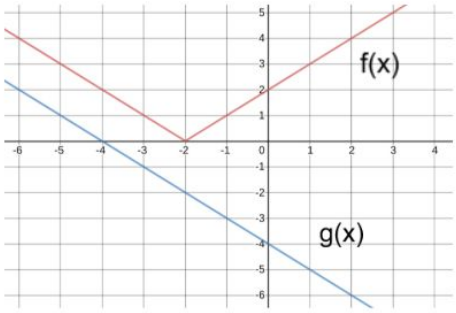
1. Given the functions $f(x) = x + 2$ and $g(x) = x^2 - 4$. Find each of the following and state the domain for each new function.
   a. $(f + g)(x)$
   b. $(f - g)(x)$
   c. $(fg)(x)$
   d. $\left(\frac{f}{g}\right)(x)$

2. Given the functions $f(x) = \sqrt{x+1}$ and $g(x) = x^2 - 4$. Find each of the following and state the domain for each new function
   a. $(f \circ g)(x)$
   b. $(g \circ f)(x)$

3. Given the functions $f(x) = \sqrt{x}$ and $g(x) = x - 3$. Find each of the following and state the domain for each new function.
   a. $(f \circ g)(x)$
   b. $(g \circ f)(x)$

4. Express the given function h as a composition of two functions f and g so that $h(x) = (f \circ g)(x)$.
   a. $h(x) = (2x - 5)^5$ b. $h(x) = \sqrt{5x^2 + 3}$ c. $h(x) = |3x - 4|$

5. Use the graphs of f and g below to evaluate each function.
   a. $(f + g)(-4)$



   b. $(f - g)(2)$

   c. $\left(\frac{f}{g}\right)(-5)$

   d. $(f \circ g)(1)$ e. $(g \circ f)(-1)$

6. Let $f(x) = 2x^2 - 3x$. Find and simplify the expression for the difference quotient $\frac{f(x+h)-f(x)}{h}$