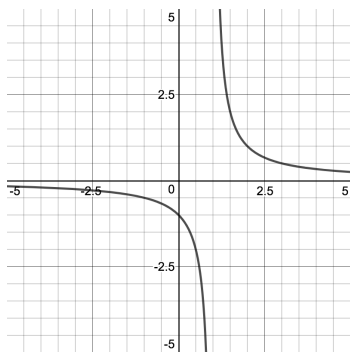


## §1.1-1.3: FUNCTIONS AND STUFF

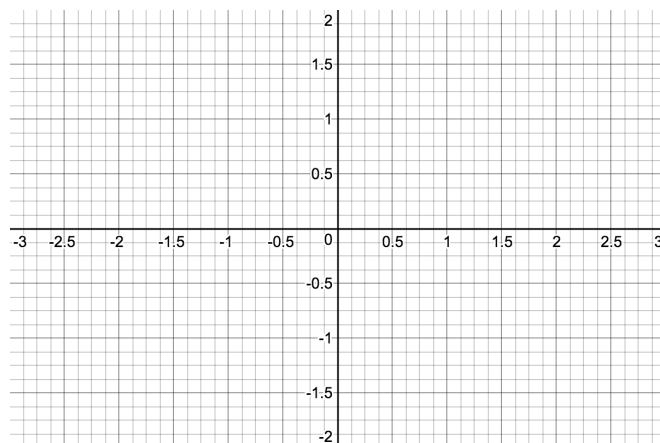
1.] Find the domain of the function  $f(x) = \frac{\sqrt{24 - 6x^2}}{2x - 1}$ .

2.] What is the domain and range of the function depicted in the graph below:



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

4.] Represent the function  $f(x) = |x|$  as a piecewise function and sketch its graph below. Sketch the graph of  $g(x) = -|x + 2|$  as well.



- 5.] Find the linear function  $f$  that goes through the points  $(0, 6)$  and  $(2, 10)$ . Is  $f$  one-to-one? If so, find the inverse function  $f^{-1}$ . Show that  $f(f^{-1}(x)) = x$ .

6.] Solve the following equation for  $x$ :  $\log_8(x) = \frac{1}{3}$

7.] Solve the following equation for  $x$ :  $3^{3x-4} = 5$

- 8.] The function sketched below is  $f(x) = \sqrt{x+1}$ . Find the domain of  $f(x)$  and the domain of  $f^{-1}(x)$ . Sketch the graph of the inverse function.

