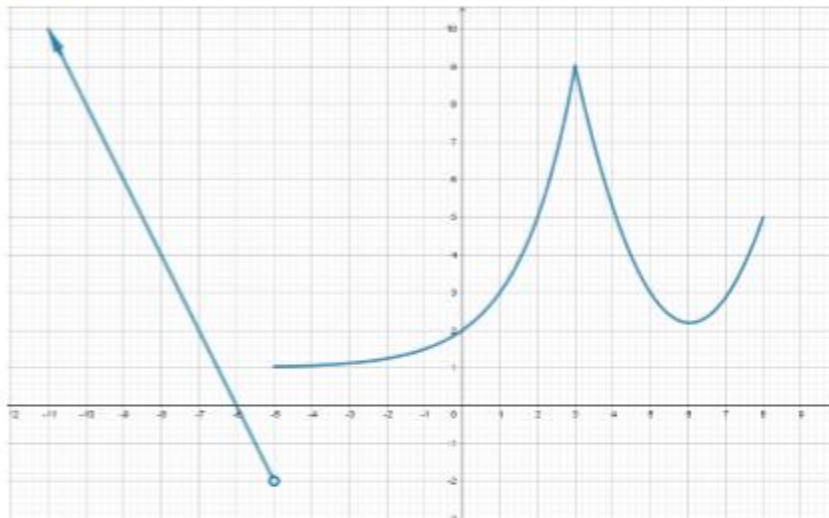**Exercise 1: (1.5 points)** Find the domain of the following functions:

a) $f(x) = \dfrac{x^2 + 7x + 6}{3x + 7}$

b) $f(x) = \dfrac{\sqrt[3]{x^2 - 4}}{x^2 - 9}$

c) $f(x) = \sqrt{5 - x}$

**Exercise 2: (1.75 ptos)** Given the graph of the following function:



a) Indicate its domain and its image

b) Indicate the point where the function crosses the axes

c) Study its monotony

d) Study the extrema

**Exercise 3: (1.25 points)** Plot the graph of the parabola $f(x) = -x^2 + 2x + 8$, studying the points where it crosses the axes, the coordinates of the vertex and finding as many more points as necessary.

**Exercise 4: (1 point)** Plot the graph of a function that fulfills all the following conditions at the same time:

a) $\operatorname{Dom} f = [-2, 5)$

b) It crosses the axes at the points $x = -3$, $x = 4$ and $y = -5$

c) $x = 2$ is a maximum

    a) Find the equation of the straight line that goes through the points $P(-2,7)$ and $Q(5,-1)$

    b) Given the equation of the straight line $9x+14y-5=0$
        b1) Find its slope and the y-intercept
        b2) Find the equation of a parallel line that goes through the point $A(-2,1)$

    c) Find the **general** equation of the straight line given by $y = \dfrac{5-3x}{7}$

**Exercise 6:** (2 points) Plot the graph of the piecewise function:

$$f(x) = \begin{cases} 2 & -7 \le x < -3 \\ x+5 & -3 < x \le 2 \\ x^2 - 10x + 21 & x > 2 \end{cases}$$