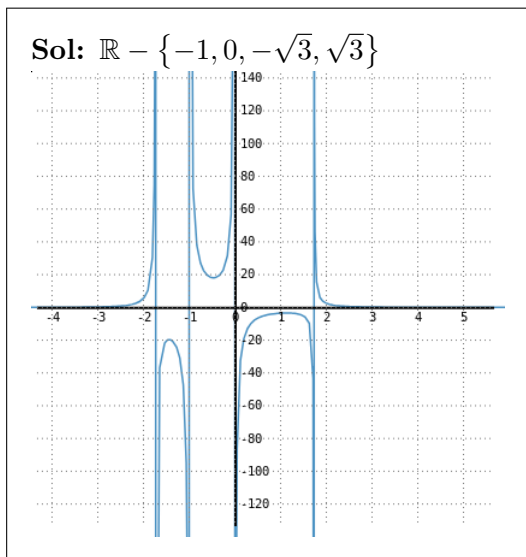


1. Calcular el dominio de las siguientes funciones:

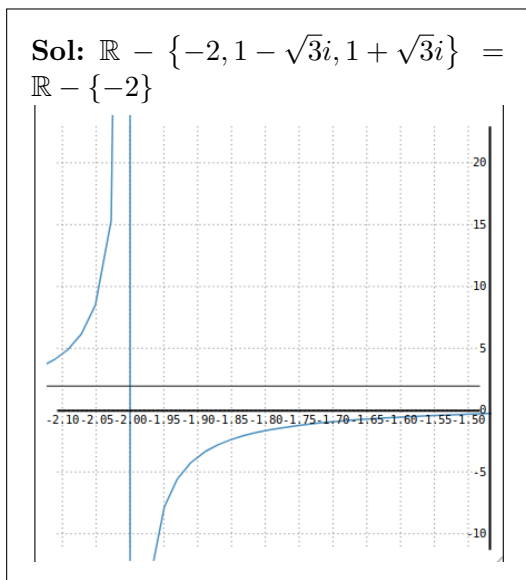
(a) $f(x) = \frac{x+13}{x^4+x^3-3x^2-3x}$



(b) $f(x) = x^6 + x^2 - 2$

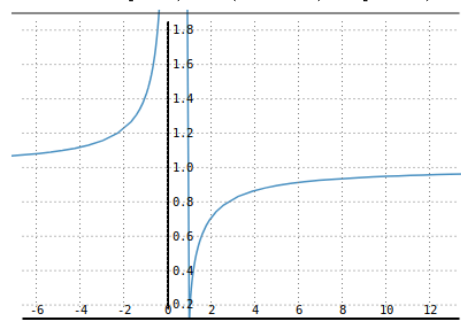
Sol: $\mathbb{R} - \emptyset$

(c) $f(x) = \frac{7x+9}{x^3+8}$



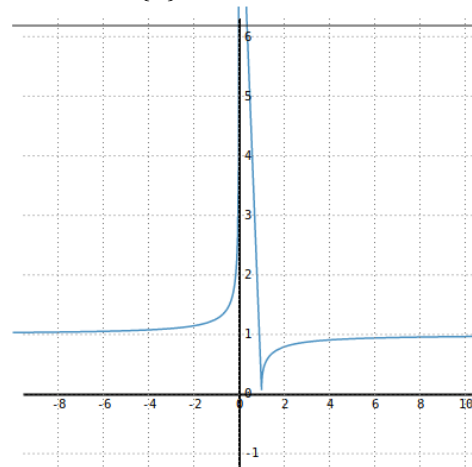
(d) $f(x) = \sqrt{\frac{x-1}{x}}$

Sol: $\mathbb{R} - [0, 1) = (-\infty, 0) \cup [1, \infty)$



(e) $f(x) = \sqrt[3]{\frac{x-1}{x}}$

Sol: $\mathbb{R} - \{0\}$

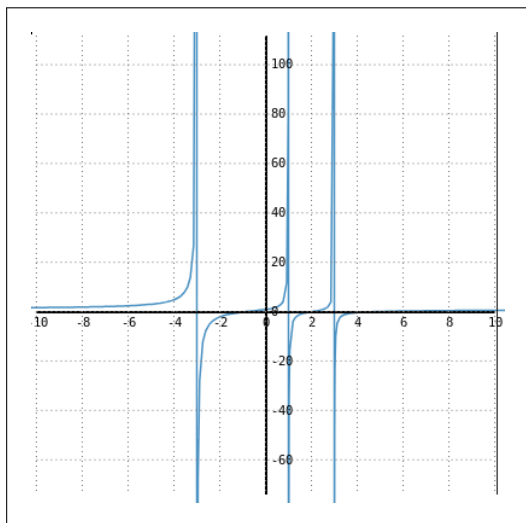


(f) $f(x) = \sqrt[4]{\frac{x(x+7)}{x^2+5x+6}}$

Sol:

(g) $f(x) = \frac{x^3 - 6x^2 + 4x + 8}{x^3 - x^2 - 9x + 9}$

Sol: $\{-3, 1, 3\}$



(h) $f(x) = \frac{1}{4x^2 - 1}$

Sol:

(i) $f(x) = \frac{1}{\sqrt[4]{9 - x^2}}$

Sol:

(j) $f(x) = \frac{2x + 7}{\sqrt[3]{9 - x}}$

Sol:

(k) $f(x) = \frac{x^2 - 5x + 6}{\sqrt{x^4 - 1}}$

Sol:

(l) $f(x) = \sqrt{-2x^2 + 5x - 3}$

Sol:

(m) $f(x) = \frac{x^2 - 3}{x^3 - 2x^2 - x + 2}$

Sol:

(n) $f(x) = \frac{5x^3 - 8}{1 + x + x^2}$

Sol:

(ñ) $f(x) = \frac{x - 1}{x^4 - 7x^2 - 144}$

Sol:

(o) $f(x) = \frac{7x + 9}{81x^4 - 16}$

Sol:

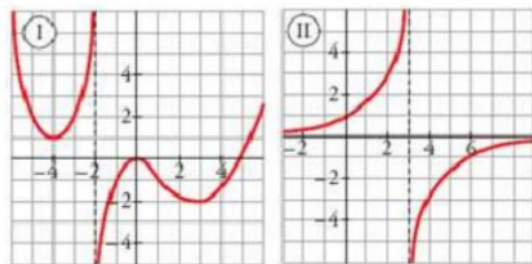
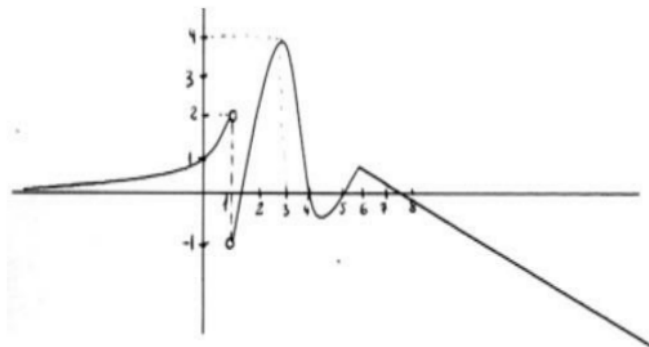
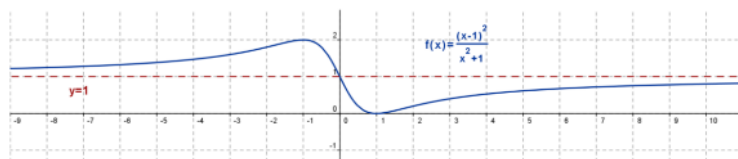
(p) $f(x) = \sqrt[3]{\frac{x^6 - 5x + 1}{x^2 - 4x + 4}}$

Sol:

(q) $f(x) = \frac{\sqrt{x^2 - 4x - 5}}{x^2 + 2x + 1}$

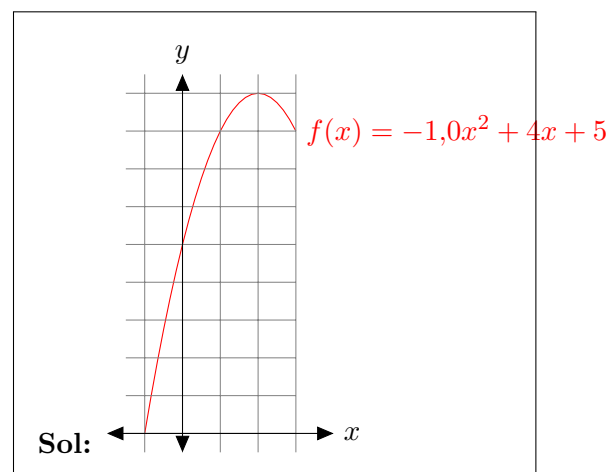
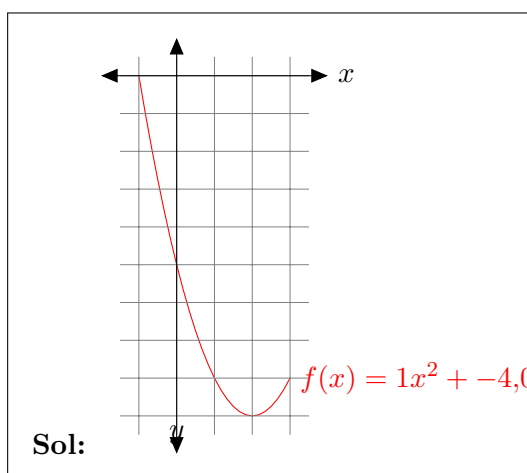
Sol:

2. Dadas las siguientes funciones, dadas por sus gráficas, obtén sus propiedades:



3. Representa las siguientes funciones, indicando sus propiedades:

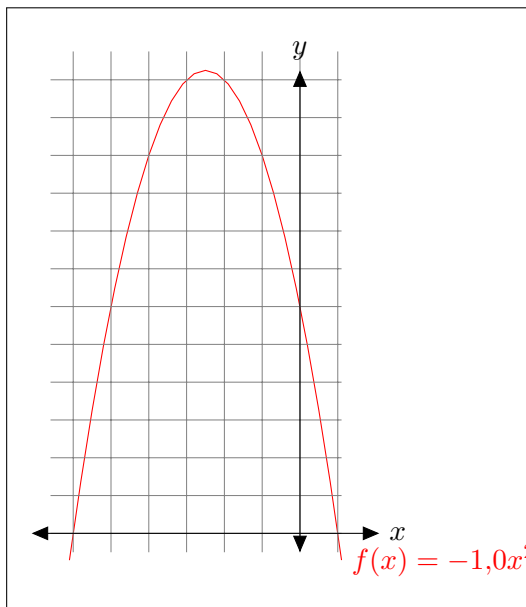
(a) $y = x^2 - 4x - 5$



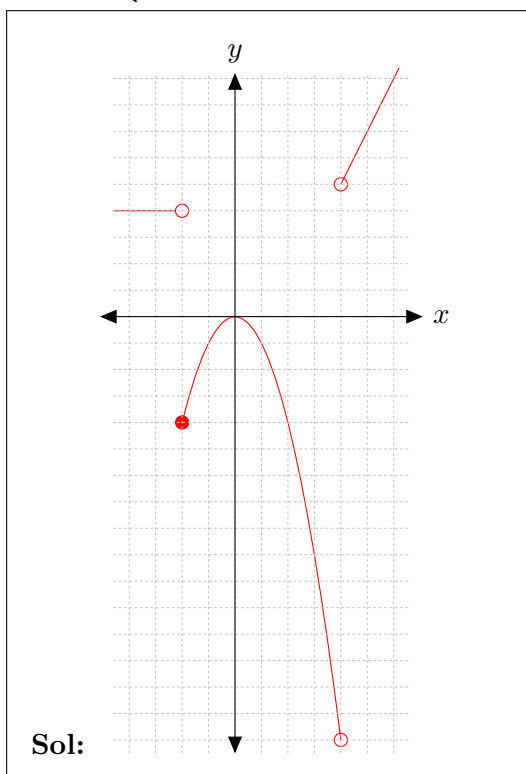
(c) $y = -x^2 - 5x + 6$

(b) $y = -x^2 + 4x + 5$

Sol:

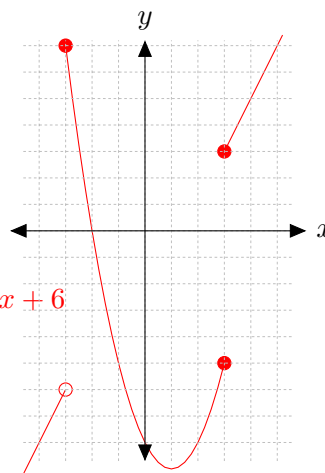


$$(d) \quad f(x) = \begin{cases} 4 & \text{si } x < -2 \\ -x^2 & \text{si } -2 \leq x < 4 \\ 2x - 3 & \text{si } x \geq 4 \end{cases}$$



$$(e) \quad f(x) = \begin{cases} 2x & \text{si } x < -3 \\ x^2 - 2x - 8 & \text{si } -3 \leq x \leq 3 \\ 2x - 3 & \text{si } x \geq 3 \end{cases}$$

Sol: Nótese, que en este caso la definición no sería una función ($x = 3$ tiene dos imágenes)



$$(f) \quad f(x) = \begin{cases} x + 1 & \text{si } x \leq 0 \\ x^2 - 4x + 3 & \text{si } x > 0 \end{cases}$$

