1ra. parte

Exercício 1

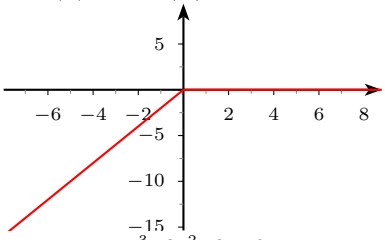
1. $(2x-1)(x^2+1)<0$, Solução: $\left(-\infty, \frac{1}{2}\right)$
2. $(2x-1)(x^2-1)>0$, Solução: $\left(-1, \frac{1}{2}\right) \cup (1, \infty)$
3. $x^3+3x^2-4x \leq 12$, Solução: $[-2,2] \cup (-\infty, -3]$
4. $\frac{x}{2x-1} \geq 3$, Solução: $\left(\frac{1}{2}, \frac{3}{5}\right]$
5. $\frac{2x-1}{x-3} > 5$, Solução: $\left(3, \frac{14}{3}\right)$
6. $x \neq \frac{2k+1}{2}\pi$ e $x \geq -1$
7. $|x+1| \geq |2x-1|$, Solução: $[0,2]$
8. $\left|x^2-4\right| > 2\left|x^2-1\right|$, Solução: $\left(-\sqrt{2}, \sqrt{2}\right)$

Exercício 3

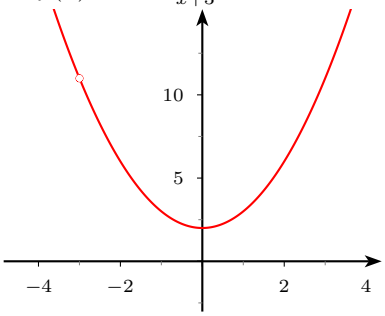
2.$\{0\} \cup [1, +\infty)$

Exercício 4

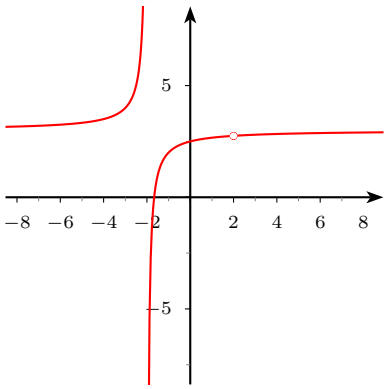
1. $f(x) = x - |x|$



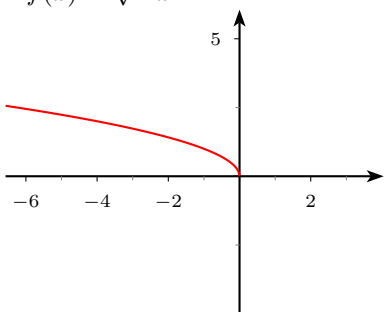
2. $f(x) = \frac{x^3+3x^2+2x+6}{x+3}$



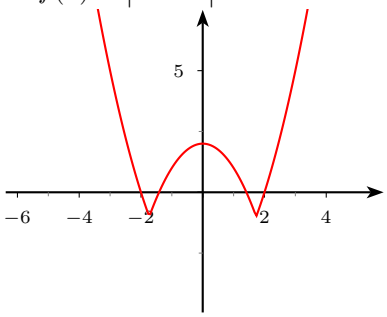
3. $f(x) = \frac{x-2}{4-x^2} + 3$



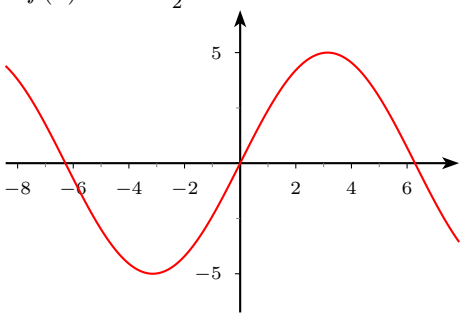
4.$f(x) = \sqrt{-x}$



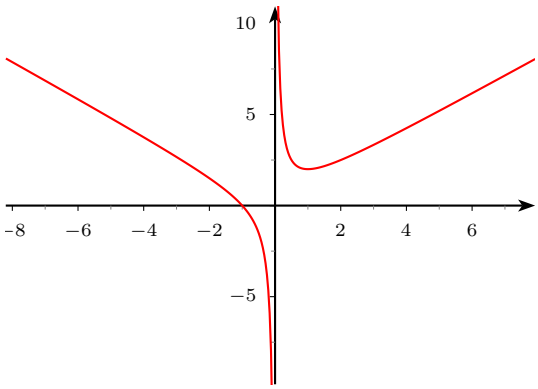
5. $f(x) = \left|x^2 - 3\right| - 1$



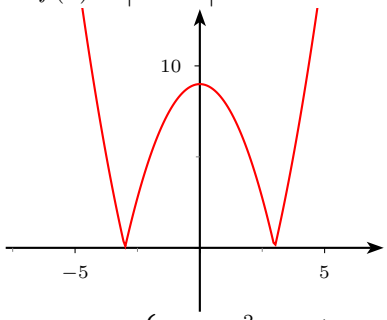
6.$f(x) = 5 \sin \frac{x}{2}$



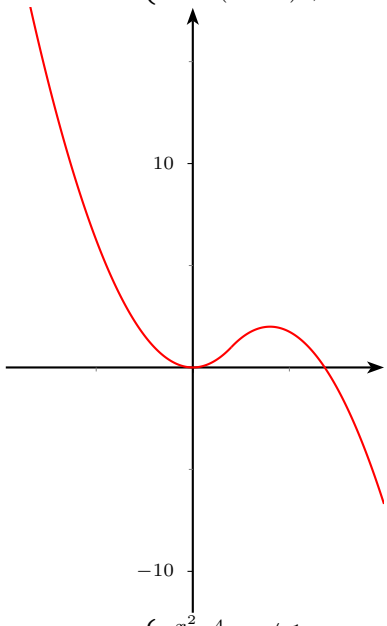
7. $f(x) = |x| + \frac{1}{x}$



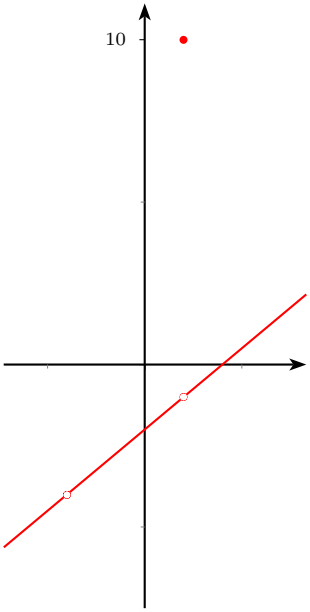
9. $f(x) = \left|x^2 - 9\right|$



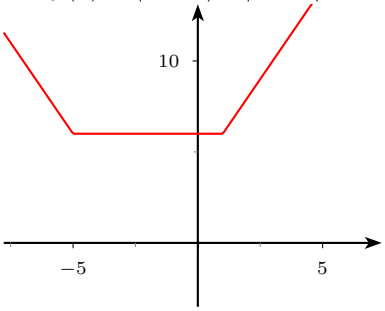
10. $f(x) = \begin{cases} x^2, x \leq 1 \\ 2 - (x-2)^2, x > 1 \end{cases}$



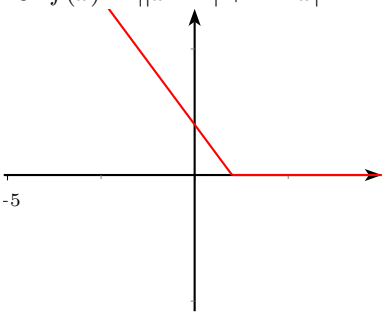
11. $f(x) = \begin{cases} \frac{x^2-4}{x+2}, x \neq 1 \\ 10, x = 1 \end{cases}$



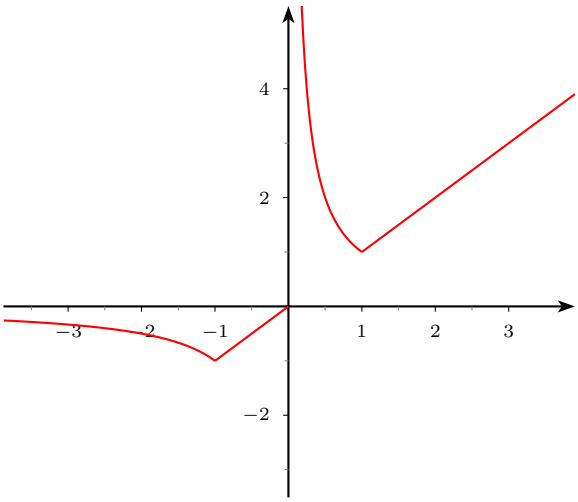
12. $f(x) = |x-1| + |x+5|$



13. $f(x) = ||x-1| + 1 - x|$

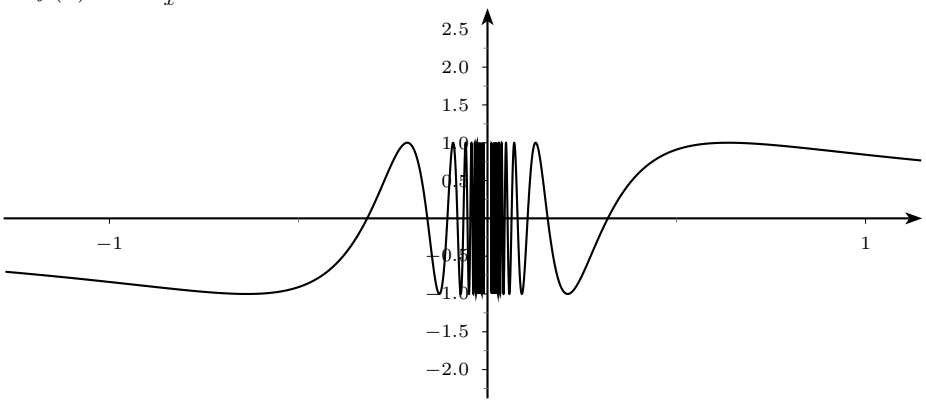


Exercício 5
$f(x) = \max\{x, \frac{1}{x}\}$. $Dom f = \mathbb{R} - \{0\}$

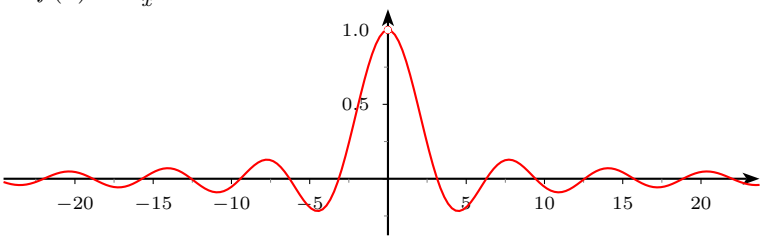


Exercício 6

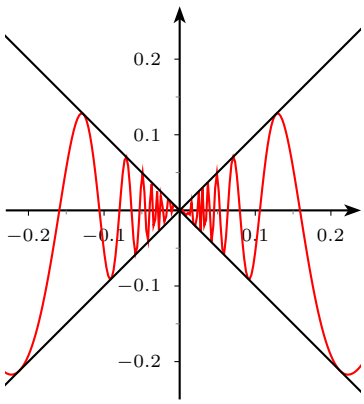
1. $f(x) = \sin \frac{1}{x}$



2. $f(x) = \frac{\sin x}{x}$



3. $f(x) = x \sin \frac{1}{x}$


0.2
0.1
−0.2
−0.1
0.1
0.2
−0.1
−0.2