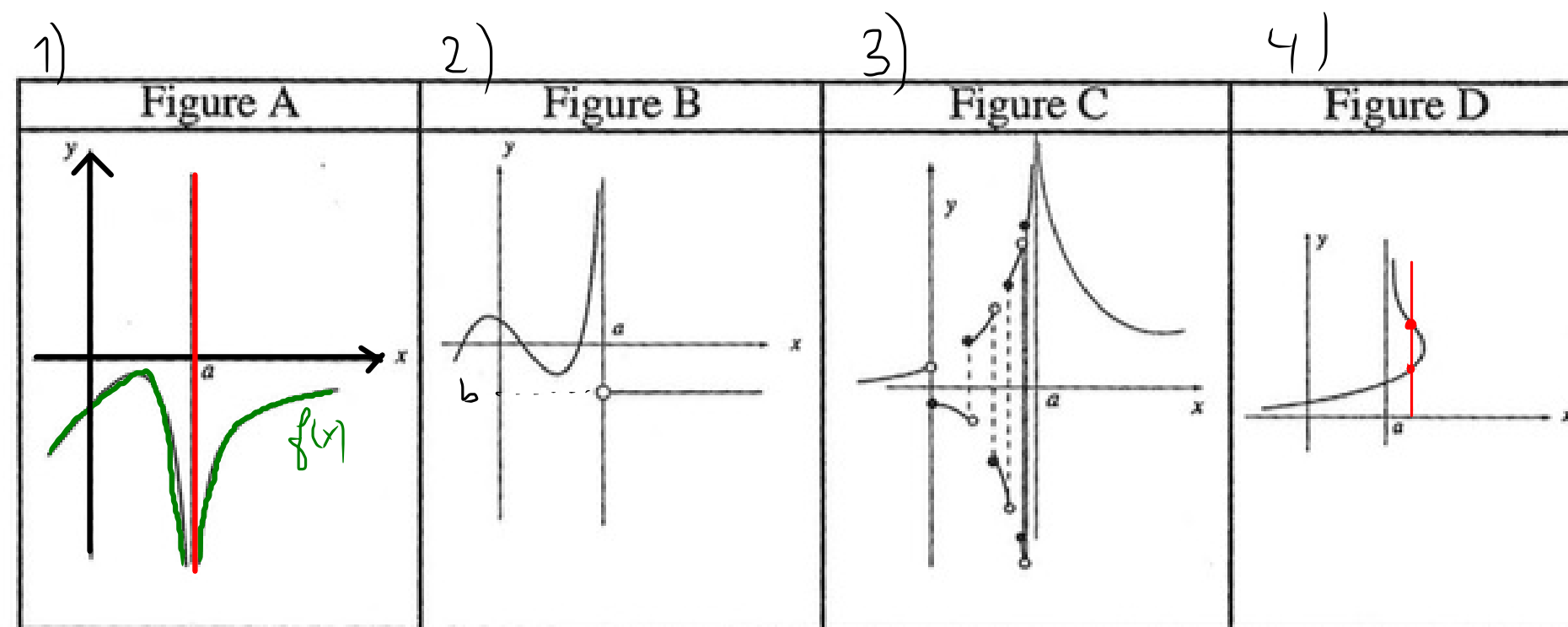


2.4.13 Dire pour chacune des quatre figures ci-dessous quelles sont les notations autorisées parmi 1), 2), ..., 9) :



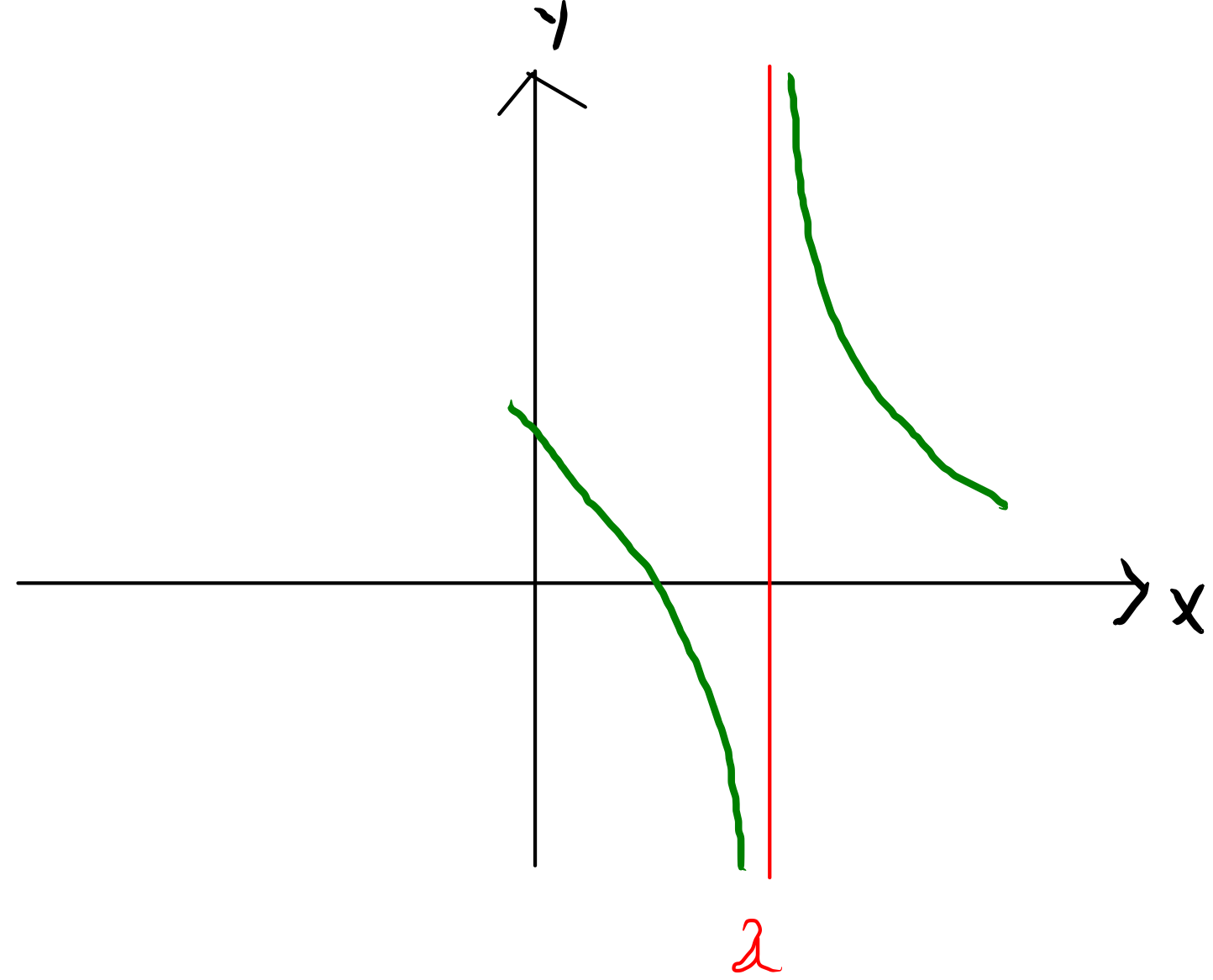
$$ED(f) = \mathbb{R} - \{a\}$$

1) $\lim_{x \rightarrow a} f(x) = \begin{cases} 1) & \infty \\ 2) & +\infty \\ 3) & -\infty \end{cases}$ $\lim_{x \rightarrow a} f(x) = \begin{cases} 4) & \infty \\ 5) & +\infty \\ 6) & -\infty \end{cases}$ $\lim_{x \rightarrow a} f(x) = \begin{cases} 7) & \infty \\ 8) & +\infty \\ 9) & -\infty \end{cases}$

2) $\lim_{x \rightarrow a} f(x) = \begin{cases} 1) & \infty \\ 2) & +\infty \\ 3) & -\infty \end{cases}$ $\lim_{x \rightarrow a} f(x) = \begin{cases} 4) & \infty \\ 5) & +\infty \\ 6) & -\infty \end{cases}$ $\lim_{x \rightarrow a} f(x) = \begin{cases} 7) & \infty \\ 8) & +\infty \\ 9) & -\infty \end{cases}$

$\lim_{x \rightarrow a} f(x) = b$

3) $\lim_{x \rightarrow a} f(x) = \begin{cases} 1) & \infty \\ 2) & +\infty \\ 3) & -\infty \end{cases}$ $\lim_{x \rightarrow a} f(x) = \begin{cases} 4) & \infty \\ 5) & +\infty \\ 6) & -\infty \end{cases}$ $\lim_{x \rightarrow a} f(x) = \begin{cases} 7) & \infty \\ 8) & +\infty \\ 9) & -\infty \end{cases}$



$$\lim_{\substack{x \rightarrow a \\ <}} f(x) = -\infty$$

$$\lim_{\substack{x \rightarrow a \\ >}} f(x) = +\infty$$

b) $\lim_{x \rightarrow -3} \frac{x^2 + 2x - 15}{x^2 + 8x + 15} \stackrel{\text{"12/0"}}{=} \infty$

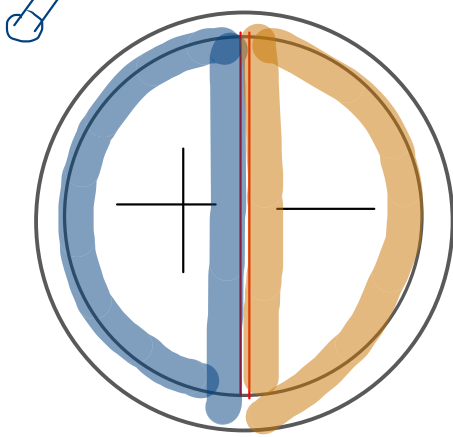
$$f(x) = \frac{x^2 + 2x - 15}{x^2 + 8x + 15} = \frac{\cancel{(x+5)}(x-3)}{\cancel{(x+5)}(x+3)} = \frac{x-3}{x+3}$$

1) Recherche de ED(f): $x^2 + 8x + 15 = 0$
 $(x+3)(x+5) = 0$
 $x = -3, x = -5$

$$ED(f) = \mathbb{R} - \{-5, -3\}$$

3) Tableau des signes: $x^2 + 2x - 15 = 0$
 $(x+5)(x-3) = 0$

x	-5	-3	3
f(x)	+	+	-



$$\lim_{x \rightarrow -3^-} f(x) = +\infty$$

$$\lim_{x \rightarrow -3^+} f(x) = -\infty$$

$$\lim_{x \rightarrow -3} f(x) = \infty$$