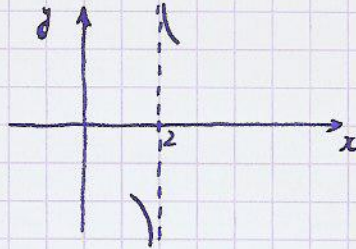


Calculs de limites (préparation au test): réponses.

1) $\lim_{x \rightarrow 2} \frac{1}{x^2 - 4} = \mp \infty$ car $\begin{matrix} x & -2 & 2 \\ x^2 - 4 & + & 0 & - & 0 & + \end{matrix}$

\rightarrow AV $\equiv x = 2$



2) $\lim_{x \rightarrow 1} \frac{x^2 - x}{x^2 - 1} = \frac{0}{0} = \lim_{x \rightarrow 1} \frac{x(x-1)}{(x-1)(x+1)} \stackrel{x \neq 1}{=} \lim_{x \rightarrow 1} \frac{x}{x+1} = \frac{1}{2}$

Point rouge en $(1, \frac{1}{2})$

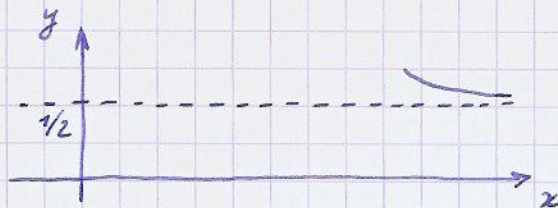
3) $\lim_{x \rightarrow 3} \frac{\sqrt{x+13} - 4}{x-3} = \frac{0}{0} = \lim_{x \rightarrow 3} \frac{(\sqrt{x+13} - 4)(\sqrt{x+13} + 4)}{(x-3)(\sqrt{x+13} + 4)}$

$= \lim_{x \rightarrow 3} \frac{x+13-16}{(x-3)(\sqrt{x+13} + 4)} = \lim_{x \rightarrow 3} \frac{x-3}{(x-3)(\sqrt{x+13} + 4)}$

$\stackrel{x \neq 3}{=} \lim_{x \rightarrow 3} \frac{1}{\sqrt{x+13} + 4} = \frac{1}{8}$ Point rouge en $(3, \frac{1}{8})$.

4) $\lim_{x \rightarrow +\infty} \frac{5x^2 + 7x + 1}{10x^2 + 1} = \frac{+\infty}{+\infty} = \lim_{x \rightarrow +\infty} \frac{5x^2}{10x^2} = \frac{1}{2}$

AH $\equiv y = \frac{1}{2}$ $f(100) \approx 0,5070 > \frac{1}{2}$



5) $\lim_{x \rightarrow -\infty} \frac{\sqrt{4x^2 + 1}}{x-1} = \frac{+\infty}{-\infty} = \lim_{x \rightarrow -\infty} \frac{\sqrt{4x^2(1 + \frac{1}{4x^2})}}{x(1 - \frac{1}{x})}$

$\stackrel{x < 0}{=} \lim_{x \rightarrow -\infty} \frac{-2x \sqrt{1 + \frac{1}{4x^2}}}{x(1 - \frac{1}{x})} \rightarrow 0 = -2 \rightarrow$ AH $\equiv y = -2$

$f(-100) \approx -1,9802 > -2$

