

Exercice 10 p 152

- 1) $\lim_{-\infty} f(x) \neq f(x)$ $\lim_{+\infty} f(x) = 2^-$ (*) pas de sens car $\text{dom} f =]-1, \rightarrow[$
- 2) $\lim_{-\infty} f(x) = +\infty$ $\lim_{+\infty} f(x) = 1^-$
- 3) $\lim_{-\infty} f(x) = -\infty$ $\lim_{+\infty} f(x) = +\infty$
- 4) $\lim_{-\infty} f(x) = +\infty$ $\lim_{+\infty} f(x) = +\infty$

Exercice 11 p 152

- 1) $\lim_{\pm\infty} 3x^2 - x + 2 = \begin{cases} +\infty \\ +\infty \end{cases}$
- 2) $\lim_{\pm\infty} (x^3 - 2x^4 + 3) = \begin{cases} -\infty \\ -\infty \end{cases}$
- 3) $\lim_{\pm\infty} (2x^3 - 3x + 4) = \pm\infty$
- 4) $\lim_{\pm\infty} (2x - 5)(x + 1)^2 = \pm\infty$
- 5) $\lim_{\pm\infty} (x - x^2 - 3x^5) = \mp\infty$
- 6) $\lim_{\pm\infty} |x + 3|(6x^2 + 5) = +\infty$
- 7) $\lim_{\pm\infty} (1 - 3x)^3 = \mp\infty$
- 8) $\lim_{\pm\infty} (1 + x^3)(3 - x^3) = -\infty$

Exercice 12 p 152

- 1) $\lim_{\pm\infty} \frac{1}{x^2 - 4} = 0^+$
- 2) $\lim_{\pm\infty} \frac{2}{3 - x} = \begin{cases} 0^+ \\ 0^- \end{cases} \updownarrow$
- 3) $\lim_{\pm\infty} \frac{1}{\sqrt{x + 2}} = \begin{cases} \text{pas de sens} \\ 0^+ \end{cases} \downarrow$
- 4) $\lim_{\pm\infty} \frac{-4}{\sqrt[3]{x + 2}} = \begin{cases} 0^+ \\ 0^- \end{cases} \updownarrow$
- 5) $\lim_{\pm\infty} \frac{1}{\sqrt[3]{4 - x^2}} = \begin{cases} 0^- \\ 0^- \end{cases}$
- 6) $\lim_{\pm\infty} \left(3 - \frac{1}{x}\right) = \begin{cases} 3^- \\ 3^+ \end{cases}$
- 7) $\lim_{\pm\infty} \left(2 + \frac{1}{x^2 - 1}\right) = 2^+$
- 8) $\lim_{\pm\infty} \left(\frac{1}{x + 2} - 4\right) = \begin{cases} -4^+ \\ -4^- \end{cases}$
- 9) $\lim_{\pm\infty} \left(\frac{1}{x^3} - 1\right) = \begin{cases} -1^+ \\ -1^- \end{cases}$

Exercice 13 p153

1) $\lim_{\pm\infty} \frac{1-3x+2x^2}{x^3-4x+3} = 0$

2) $\lim_{\pm\infty} \frac{(x-1)(x^2+x-1)}{1-3x^2} = \mp\infty$

3) $\lim_{\pm\infty} \frac{4x+5}{(x-1)^2} = 0$

4) $\lim_{\pm\infty} \frac{(2x-1)^3}{x^3-1} = 8$

5) $\lim_{\pm\infty} \frac{(5-2x)(6x+1)}{1-2x+3x^2} = -4$

6) $\lim_{\pm\infty} \frac{(x+1)(2x-3)^2}{3x+5} = +\infty$

7) $\lim_{\pm\infty} \frac{(x+2)(3-2x)^3}{(x^2-1)^2} = -8$

limites en l'infini

8) $\lim_{\pm\infty} \frac{\sqrt{x^2+x-2}}{2x+3} = \left\{ \begin{array}{l} + \\ - \end{array} \right. \frac{1}{2}$

9) $\lim_{\pm\infty} \frac{\sqrt{2x^3-1}}{x+3} = \left\{ \begin{array}{l} \text{pas de sens} \\ +\infty \end{array} \right.$

10) $\lim_{\pm\infty} \frac{\sqrt{x-2} + x}{4-\sqrt{3-x}} = \text{pas de sens}$

11) $\lim_{\pm\infty} \frac{\sqrt{4x^2-1} + \sqrt{x^2+2}}{x-3} = \left\{ \begin{array}{l} -3 \\ +3 \end{array} \right.$

12) $\lim_{\pm\infty} \frac{5x+4}{2+\sqrt{x^2-9}} = \left\{ \begin{array}{l} -5 \\ +5 \end{array} \right.$

13) $\lim_{\pm\infty} \frac{\sqrt[3]{27x^3+2}}{x} = 3$

14) $\lim_{\pm\infty} \frac{\sqrt{x^2-1}}{4x^2+1} = \frac{1}{2}$

Exercice 14 p153

1) $\lim_{\pm\infty} (\sqrt{x^2+1} - x + 1) = \left\{ \begin{array}{l} 1 \\ +\infty \end{array} \right.$

2) $\lim_{\pm\infty} (3x+1 - \sqrt{9x^2+2}) = \left\{ \begin{array}{l} 1 \\ -\infty \end{array} \right.$

3) $\lim_{\pm\infty} (\sqrt{x^2-5x+2} + x + 1) = \left\{ \begin{array}{l} +\infty \\ \frac{7}{2} \end{array} \right.$

4) $\lim_{\pm\infty} (2x + \sqrt{x^2-1}) = \left\{ \begin{array}{l} +\infty \\ -\infty \end{array} \right.$

5) $\lim_{\pm\infty} (\sqrt{x^2-x} - x^2) = -\infty$

6) $\lim_{\pm\infty} (\sqrt{x^2+x} - \sqrt{x^2-2}) = \left\{ \begin{array}{l} - \\ + \end{array} \right. \frac{1}{2}$

7) $\lim_{\pm\infty} (\sqrt{2x^2+1} - \sqrt{3x^2-x}) = \left\{ \begin{array}{l} +\infty \\ -\infty \end{array} \right.$

8) $\lim_{\pm\infty} (\sqrt{x^2+2x} - x - 2) = \left\{ \begin{array}{l} -1 \\ +\infty \end{array} \right.$

9) $\lim_{\pm\infty} (\sqrt{3-x} - \sqrt{1-2x}) = \left\{ \begin{array}{l} \text{pas de sens} \\ -\infty \end{array} \right.$

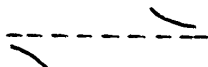
10) $\lim_{\pm\infty} (\sqrt{x+1} - \sqrt{2-x}) = \text{pas de sens}$

11) $\lim_{\pm\infty} (\sqrt{x^3-1} - \sqrt{x^3+2x}) = \left\{ \begin{array}{l} 0 \\ \text{pas de sens} \end{array} \right.$

12) $\lim_{\pm\infty} (\sqrt{2x^2-1} - 2\sqrt{x^2+1}) = -\infty$

Exercice 15 p 153

limites en l'infini

1) $AH \equiv y = \frac{1}{3}$ 

7) $AH \equiv y = 0$ 

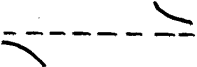
2) $AH \equiv y = 0$ 

8) $AH \equiv y = 0$ 

3) pas AH

9) pas AH

4) $AH \equiv y = 0$
(en $+\infty$) 

10) $AH \equiv y = -8$ 

5) $AH \equiv y = 2$ 

6) $AH \equiv y = 0$ 