# LIMITES

① Remplacer

$$\lim_{x \to 2} \frac{x^3-1}{x+2} = \ll \frac{2^3-1}{2+2} \gg = \frac{8-1}{4} = \frac{7}{4}$$

$$\lim_{x \to 2} \frac{x^3-1}{x+2} = \frac{7}{4}$$

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$$\lim_{x \to 2} \frac{x^3-1}{x-2} = \ll \frac{8-1}{2-2} \gg = \ll \frac{7}{0} \gg$$ ← GROS

$$= \infty$$

1,9 / 1,99 / ... / 1,999999

2,1 / 2,01 / ... / 2,000001

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$$\lim_{x \to 1} \frac{x^3-1}{x-1} = \ll \frac{1^3-1}{1-1} \gg = \ll \frac{0}{0} \gg$$ IND.

Indéterminé

FACTORISER

$$= \lim_{x \to 1} \frac{(x-1)(x^2+x+1)}{(x-1) \cdot 1}$$

$$= \lim_{x \to 1} \left( x^2 + x + 1 \right) = \ll 1^2 + 1 + 1 \gg$$

$$= 3$$

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$$\lim_{x \to 3} \frac{x^2 + 2x - 15}{x^2 - 6x + 9} = \ll \frac{9 + 6 - 15}{9 - 18 + 9} \gg \quad x = 3$$

$A^2 - 2AB + B^2$

$$= \ll \frac{0}{0} \gg \quad \text{IND.} \Rightarrow \text{FATTO}$$

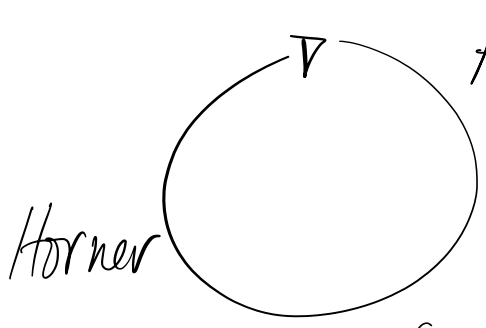
$$= \lim_{x \to 3} \frac{(x-3)(x+5)}{(x-3)^{2-1}} = \lim_{x \to 3} \frac{x+5}{x-3} = \ll \frac{8}{0} \gg$$

$(x-3)(x-3)$

$$= \infty$$

$$\lim_{x \to 1} \frac{x^2 - 2x + 1}{x - 1} = \lim_{x \to 1} \frac{(x-1)^2}{x-1} = \lim_{x \to 1} \frac{(x-1)(x-1)}{(x-1)}$$

$$= \lim_{x \to 1} (x-1) = \ll 1 - 1 \gg = 0$$




(Groupements)

$$X^3-1 = (X-1)(X^2+X\cdot 1+1^2) = (X-1)(X^2+X+1)$$

$$A^3-B^3 = (A-B)(A^2+AB+B^2)$$

$$X^3-3X+2 = 1\cdot X^3+0\cdot X^2-3\cdot X+2$$

$$D_2 = \{\pm 1;\pm 2\}$$

| | 1 | 0 | −3 | 2 |
|---|---|---|---|---|
| 1 | | | | |

Horner

$$\lim_{x\to 1} \frac{x^3+x^2-x-1}{x^2-1} = \ll \frac{0}{0} \gg$$ НД.

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$$x^3+x^2-x-1 = x^2(x+1) - (x+1) = (x^2-1)(x+1) = (x+1)(x-1)(x+1)$$

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

$$= \ll 1+1 \gg$$

$$= 2$$

$$(x^3-1) \overset{?}{=} (x-1)^3$$

$$2^3-1 = 8-1 \overset{?}{=} (2-1)^3 = 1^3 = 1$$

$$7 = 1$$

$2x^2 \qquad x = -1$

$2(\quad)^2 = 2\cdot(-1)^2 = 2\cdot(-1)\cdot(-1)$

$= 2\cdot 1 = 2$

$\log_2\left(\sqrt[5]{2}\right) = \log_2\left(2^{\frac{1}{5}}\right) = \frac{1}{5}$

$= \frac{1}{5}\log_2 2$

$= \frac{1}{5}\cdot 1$

$x^4+x^3-2 = \qquad D_2 = \{\pm 1; \pm 2\}$

$1\cdot x^4+1x^3+0\cdot x^2+0x-2$

$1 \quad 1 \quad 0 \quad 0 \quad -2$

$1$