

T → Serie!

ex 1:

$$1) f_1(x) = \frac{x}{\sqrt{1+x^2} - \sqrt{1+x}}$$

$$\Rightarrow \sqrt{1+x^2} - \sqrt{1+x} \neq 0$$

$x$  should not be 0 or 1

$\Rightarrow x$  should not be  $[-1, 1]$

$$\Leftrightarrow Df_1 = ]-1; +\infty[ \setminus (0, 1)$$

$$\left( Df_1^2 = \left\{ ]-1; 0[ \cup ]0; 1[ \cup \right. \right. \\ \left. \left. ]1; +\infty[ \setminus (0, 1) \right\} \right)$$

$$2) f_2(x) = \ln(1+x^3) + x - 1$$

$$Df_2 = ]-1; +\infty[$$

$$3) f_3(x) = \frac{\ln(x)}{\sqrt{x^2} - 4} \quad x \neq 0$$

$\Leftrightarrow x$  should not be 2

$$\Leftrightarrow Df_3 = ]2; +\infty[ \setminus (2, -2)$$

$$f_4(x) = \sqrt{|x+2| - |2x-4|}$$

$$\Leftrightarrow |x+2| - |2x-4| \geq 0.$$

$$\Leftrightarrow |x+2| = |2x-4|$$

$$\Leftrightarrow x+2 = 2x-4$$

$$\Leftrightarrow x = 2x-4-2$$

$$\Leftrightarrow x = 2x-6$$

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

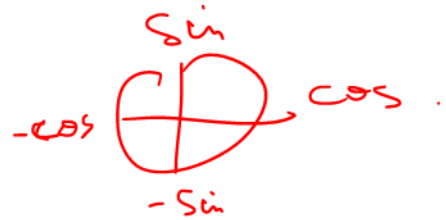
$$\Leftrightarrow x \left( \frac{1 - \ln(1+x)}{x} \right)$$

## Intégrale :

I) Intégration par partie :

Soit la formule suivante :

$$A = \int \underbrace{x}_v \frac{\sin(x)}{\underbrace{u'}} dx$$



$$v = x^a$$

$$v' = 1^b$$

$$u' = \sin(x)^d$$

$$u = -\cos(x)^c$$

$$A = a \cdot c - \int b \cdot c dx.$$

$$\Rightarrow A = -x \cos(x) - \int -\cos(x) dx.$$

$$= -x \cos(x) + \int \cos(x) dx.$$

$$= -x \cos(x) + \sin(x) + C$$

$C \Rightarrow$  constante























