

Ex 2.2.9

a) $f(x) = \sqrt{3x+1} = (g \circ h)(x)$ $g(x) = ?$ $h(x) = ?$

$$\begin{array}{ccccc} & & \xrightarrow{h} & & \xrightarrow{g} \\ x & \longrightarrow & 3x+1 & \longrightarrow & \sqrt{3x+1} \end{array}$$

$\Rightarrow h(x) = 3x+1$ or $g(x) = \sqrt{x}$
or $h(x) = 3x$ or $g(x) = \sqrt{x+1}$

$$ED(f) = \left[-\frac{1}{3} ; +\infty\right[$$

cond: $3x+1 \geq 0$
 $3x \geq -1$
 $x \geq -\frac{1}{3}$

b) $f(x) = \frac{1}{x^2+x+3} = (g \circ h)(x) = g(h(x))$

$$h(x) = x^2+x+3$$

$$g(x) = \frac{1}{x}$$

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

cond: $x^2+x+3 \neq 0$

$\Delta = 1-12 < 0$
pas de zéro

$\Rightarrow$ pas de u.i.

$$c) f(x) = (x+2)^7$$

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

$$(g \circ h)(x) = g(h(x))$$

$$h(x) = x+2$$

$$g(x) = x^7$$

$$d) f(x) = \frac{\sqrt{x}+2}{\sqrt{x}-4}$$

$$(g \circ h)(x) = g(h(x))$$

$$h(x) = \sqrt{x}$$

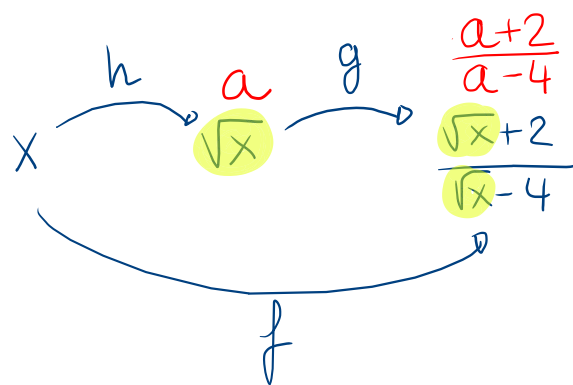
$$g(x) = \frac{x+2}{x-4}$$

$$ED(f) = \mathbb{R}_+ - \{16\}$$

$$\text{cond: } x \geq 0 \text{ et } \sqrt{x}-4 \neq 0$$

$$\sqrt{x} \neq 4$$

$$x \neq 16$$



$$f) f(x) = 3^{2x-5}$$

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

$$h(x) = 2x-5$$

$$g(x) = 3^x$$

$$e) f(x) = \log(x^2+4)$$

$$h(x) = x^2+4$$

$$g(x) = \log(x)$$

$$\text{cond: } x^2+4 > 0$$

Somme de deux carrés

$\Rightarrow$ pas de zéro

$\Rightarrow$ tjs positif.

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