

Opérations sur les fonctions

Ex 2.2.6

a) $f(x) = 3$ or $g(x) = x^2$

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

$$(f+g)(x) = 3+x^2$$

$$\text{ED} = \mathbb{R}$$

$$(f-g)(x) = 3-x^2$$

$$\text{" "}$$

$$(f \cdot g)(x) = 3x^2$$

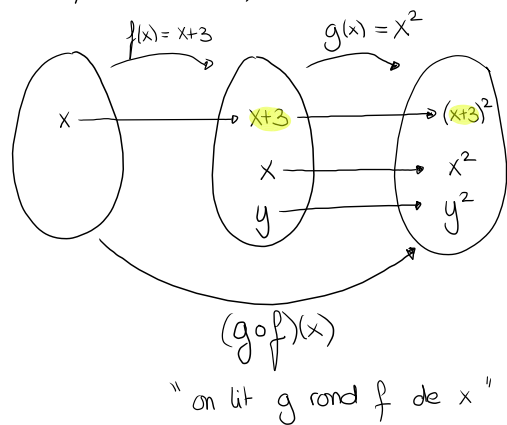
$$\text{" "}$$

$$\left(\frac{f}{g}\right)(x) = \frac{3}{x^2}$$

$$\text{ED} = \mathbb{R}^*$$

Composition de fonctions

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



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

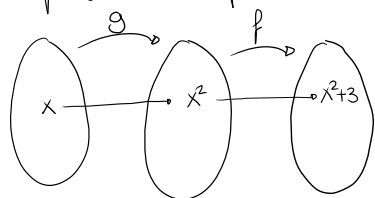
Exemples : 1) $f(x) = x+3$ et $g(x) = x^2$

$$(g \circ f)(x) = (x+3)^2$$

$$(f \circ g)(x) = f(g(x)) = f(x^2) = x^2 + 3$$

En général :

$$(g \circ f)(x) \neq (f \circ g)(x)$$



2) ex 2.2.7 $f(x) = 2x$ $g(x) = 2x-1$ $h(x) = x^2$

$$a) (f \circ g)(x) = f(g(x)) = f(2x-1) = 2(2x-1) = 4x-2$$

$$(g \circ f)(x) = g(f(x)) = g(2x) = 2(2x)-1 = 4x-1$$

$$b) (h \circ f)(x) = h(f(x)) = h(2x) = (2x)^2 = 4x^2$$

$$(f \circ h)(x) = f(h(x)) = f(x^2) = 2x^2$$

$$c) (g \circ h \circ f)(x) = g(h(f(x))) = g(h(2x)) = g(4x^2) = 2 \cdot 4x^2 - 1 = 8x^2 - 1$$

ex 2.2.8

$$a) (f \circ g)(x) =$$