Opération sur les Fonctions

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Initiation

Soit :

1. $f:\begin{vmatrix} A \to B \\ x \to f(x) \end{vmatrix}$, $D_f = \{x | x \in A \wedge (x,y) \in f\}$
2. $g:\begin{vmatrix} A \to B \\ x \to g(x) \end{vmatrix}$, $D_g = \{x | x \in A \wedge (x,y) \in g\}$
3. $r \in °$

Somme $f+g$

$$f+g:\begin{vmatrix} A \to B \\ x \to f(x)+g(x) \end{vmatrix} , D_{f+g} = D_f \text{ I } D_g$$

Ou :

$$(f+g)(x) = f(x)+g(x) , D_{f+g} = D_f \text{ I } D_g$$

Différence $f-g$

$$f-g:\begin{vmatrix} A \to B \\ x \to f(x)-g(x) \end{vmatrix} , D_{f-g} = D_f \text{ I } D_g$$

Ou :

$$(f-g)(x) = f(x)-g(x) , D_{f-g} = D_f \text{ I } D_g$$

Produit fg

$$fg:\begin{vmatrix} A \to B \\ x \to f(x)g(x) \end{vmatrix} , D_{fg} = D_f \text{ I } D_g$$

Ou :

$$(fg)(x) = f(x)g(x)\ ,\ D_{fg} = D_f \text{ I } D_g$$

Quotient $\frac{f}{g}$

$$\frac{f}{g} : \begin{vmatrix} A \to B \\ x \to \frac{f(x)}{g(x)} \end{vmatrix},\ D_{fg} = D_f \text{ I } D_g - \left\{ x \middle| x \in D_g \wedge g(x) = 0 \right\}$$

Ou :

$$(\frac{f}{g})(x) = \frac{f(x)}{g(x)}\ ,\ D_{fg} = D_f \text{ I } D_g - \left\{ x \middle| x \in D_g \wedge g(x) = 0 \right\}$$

Produit rf

$$rf : \begin{vmatrix} A \to B \\ x \to rf(x) \end{vmatrix},\ D_{rf} = D_f$$

Ou :

$$(rf)(x) = rf(x)\ ,\ D_{rf} = D_f$$