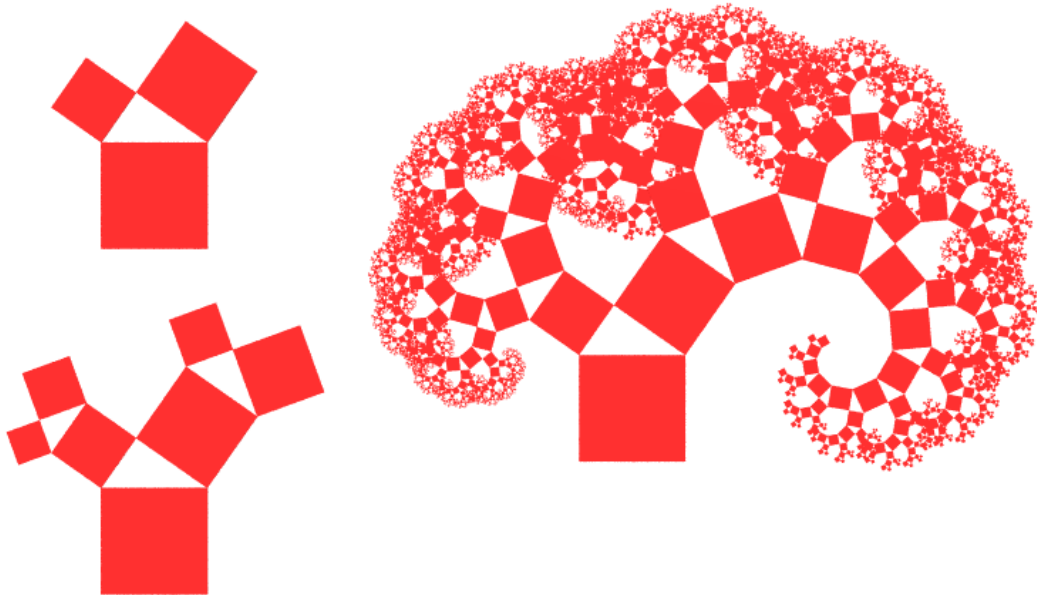


# Regards de Géomètres : les fractales

Stéphane Génieys  
Collège Le Bastion





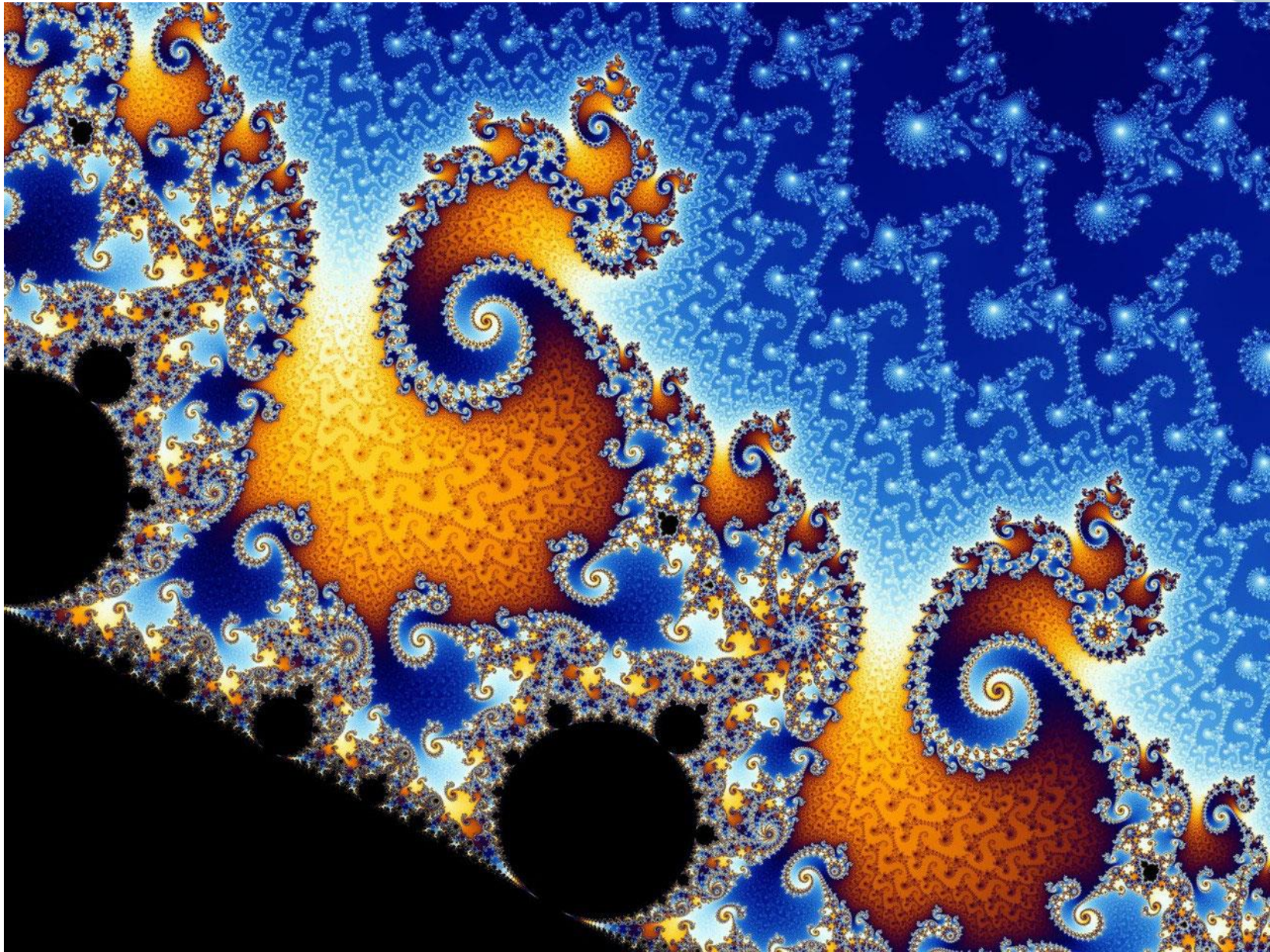
# Regards de géomètres



A quoi ça sert les maths ?

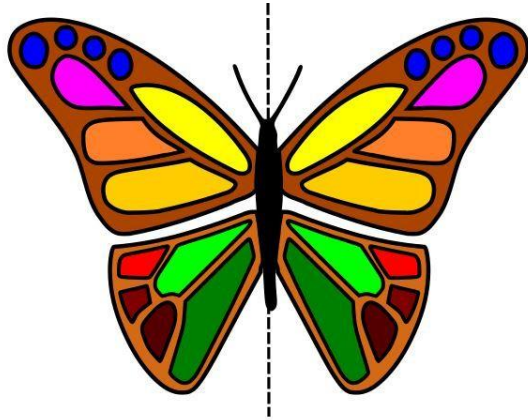
C'est quoi la beauté ?

# C'est quoi la beauté ?



# La symétrie

Sym : avec  
Métrie : mesure



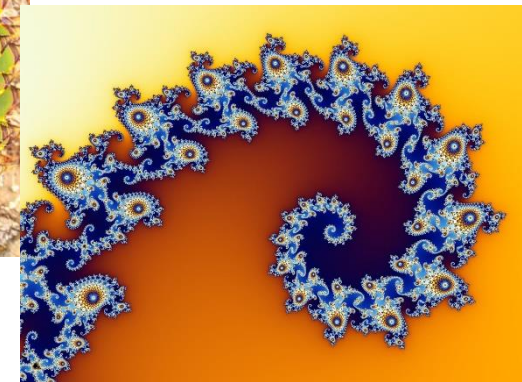
symétrie axiale



symétrie de rotation

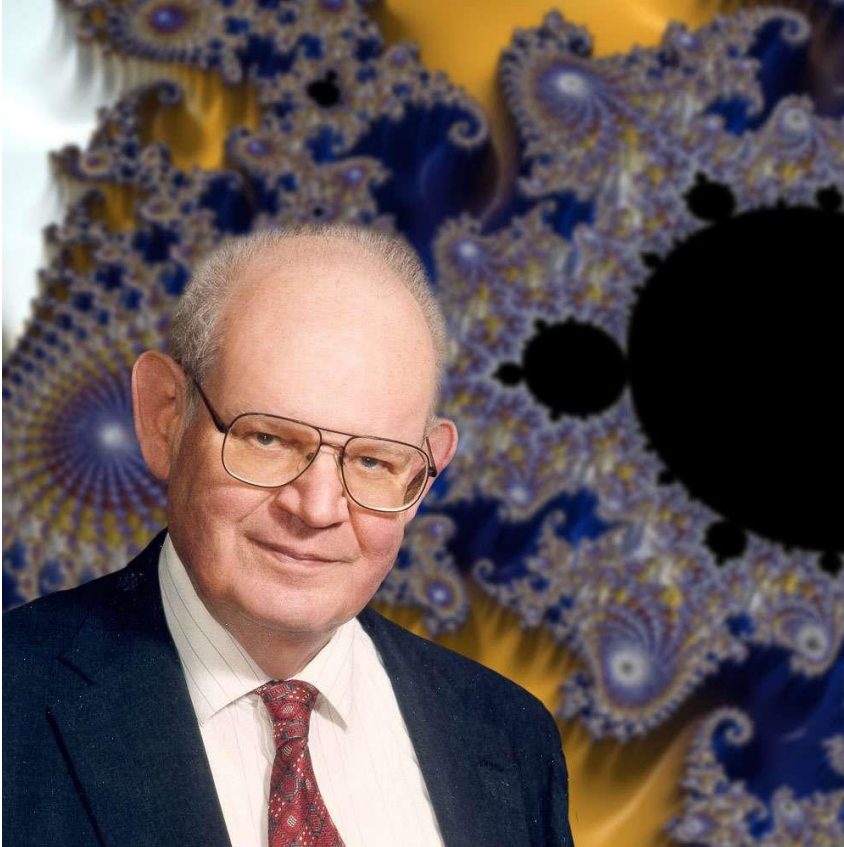


symétrie de translation



Autres symétries

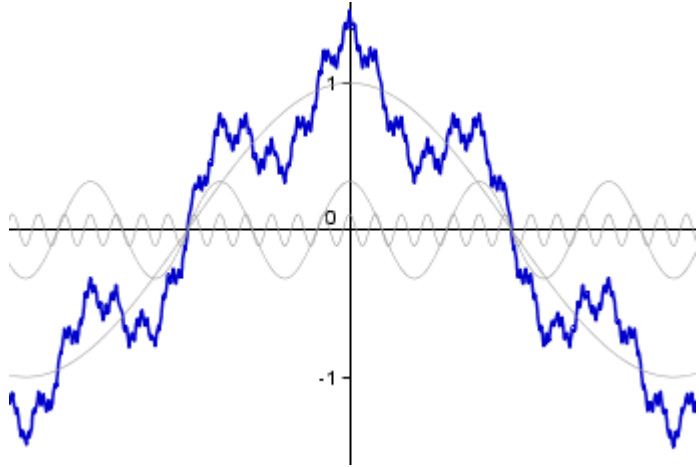
Popularisées par Benoit Mandelbrot



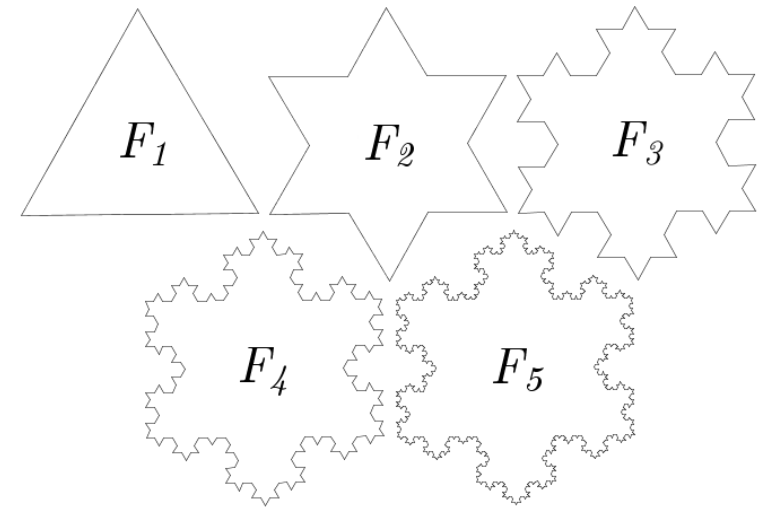
Fractale, du latin *fractus*, « brisé » :

Objet géométrique qui présente une structure similaire à toutes les échelles.

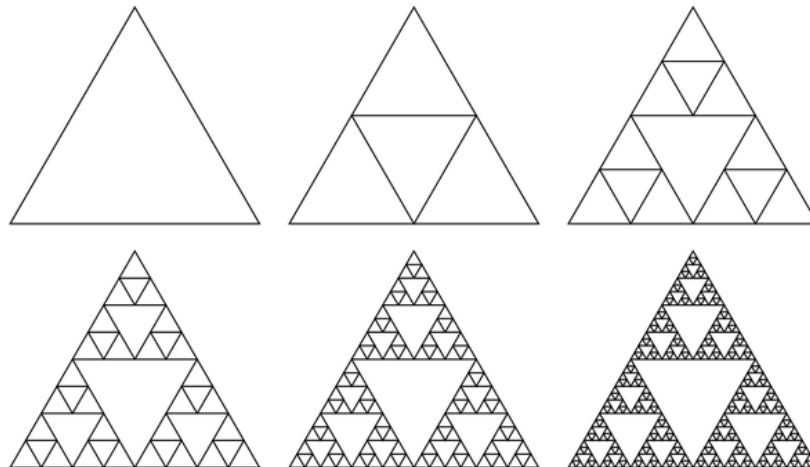
- La fonction de Weierstrass (cette « plaie lamentable ») :



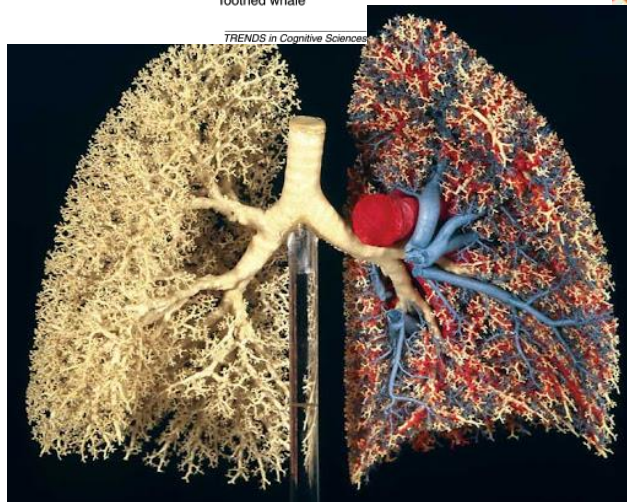
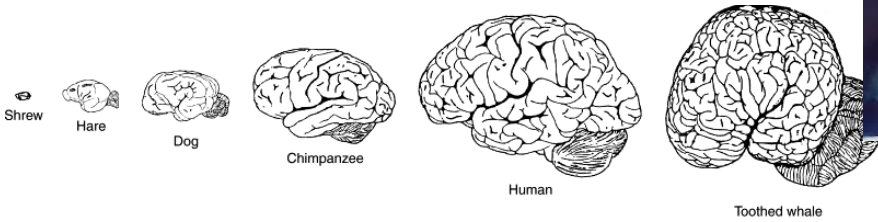
- Le flocon de Von Koch :



- Le triangle de Sierpiński :



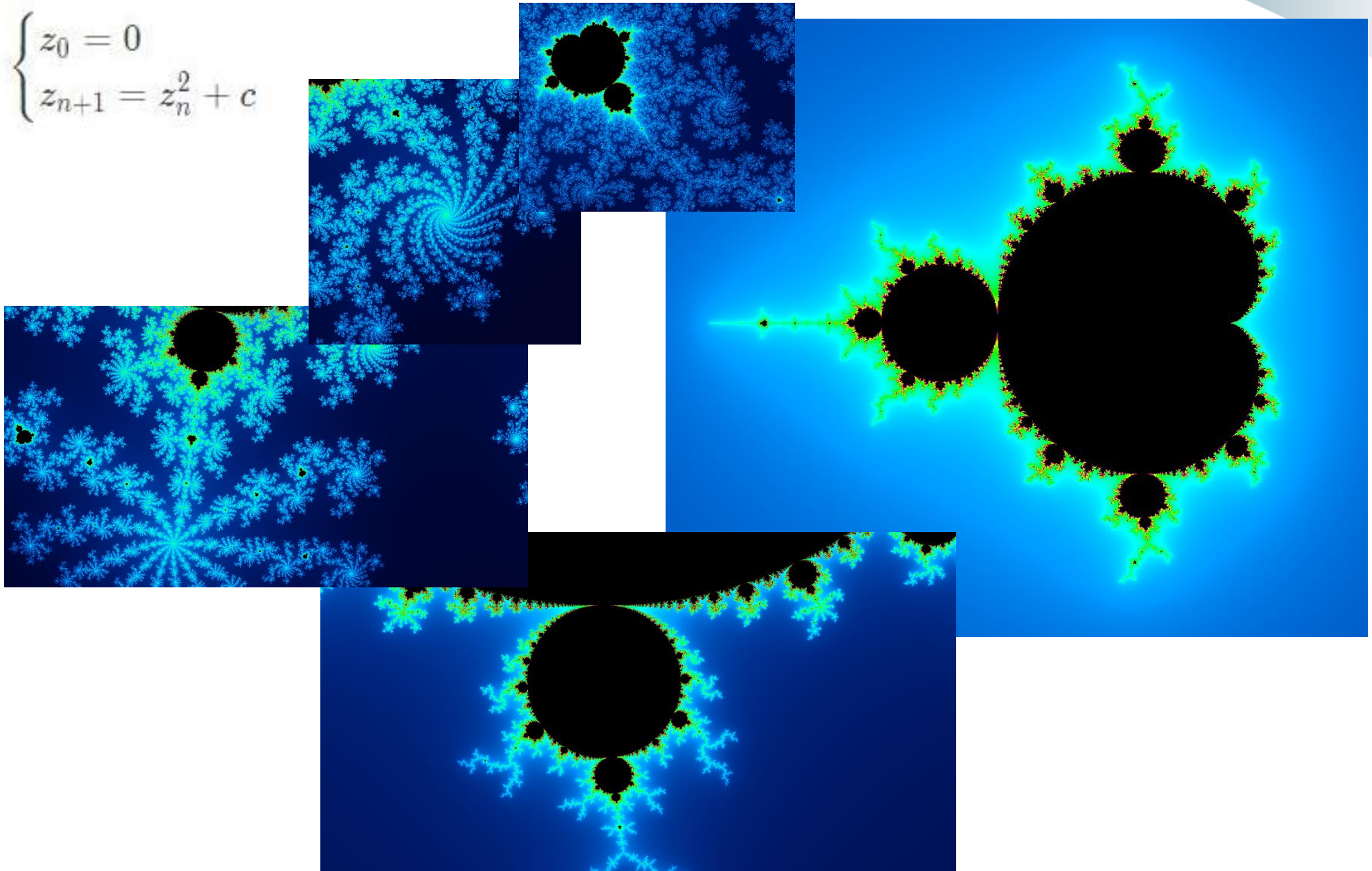
# Dans la nature





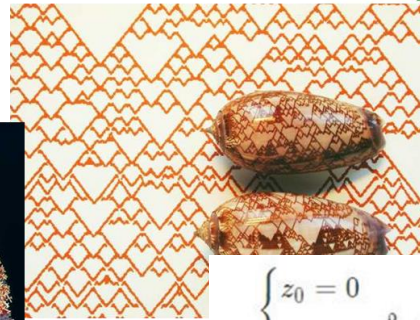
# Ensemble de Mandelbrot

$$\begin{cases} z_0 = 0 \\ z_{n+1} = z_n^2 + c \end{cases}$$

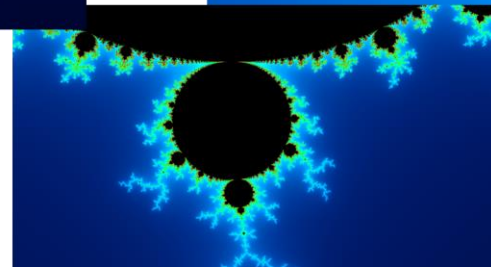
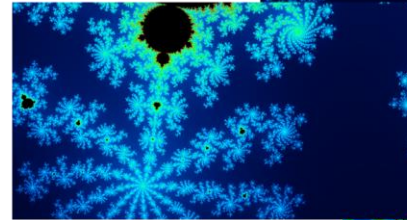
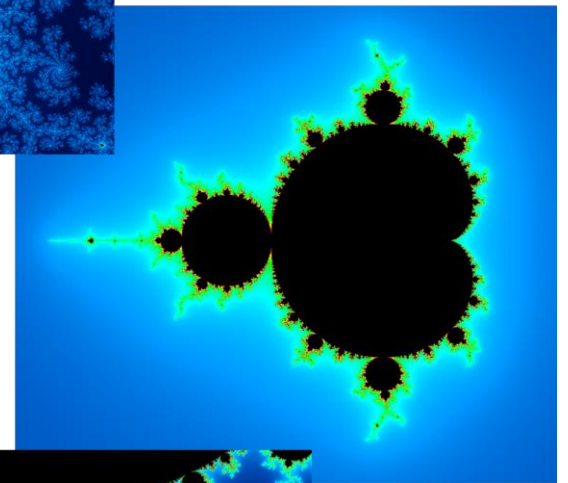
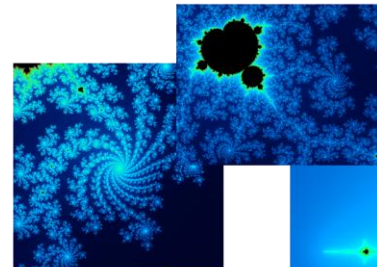
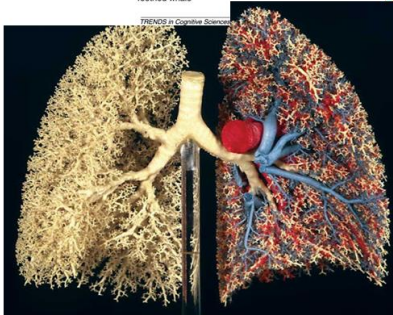
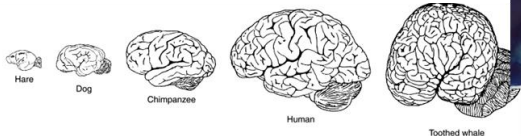


<https://lehollandaisvolant.net/tout/tools/mandelbrot/>

# C'est quoi le plus fascinant ?



$$\begin{cases} z_0 = 0 \\ z_{n+1} = z_n^2 + c \end{cases}$$



# A vous de voir !

<https://lehollandaisvolant.net/tout/tools/mandelbrot/>

