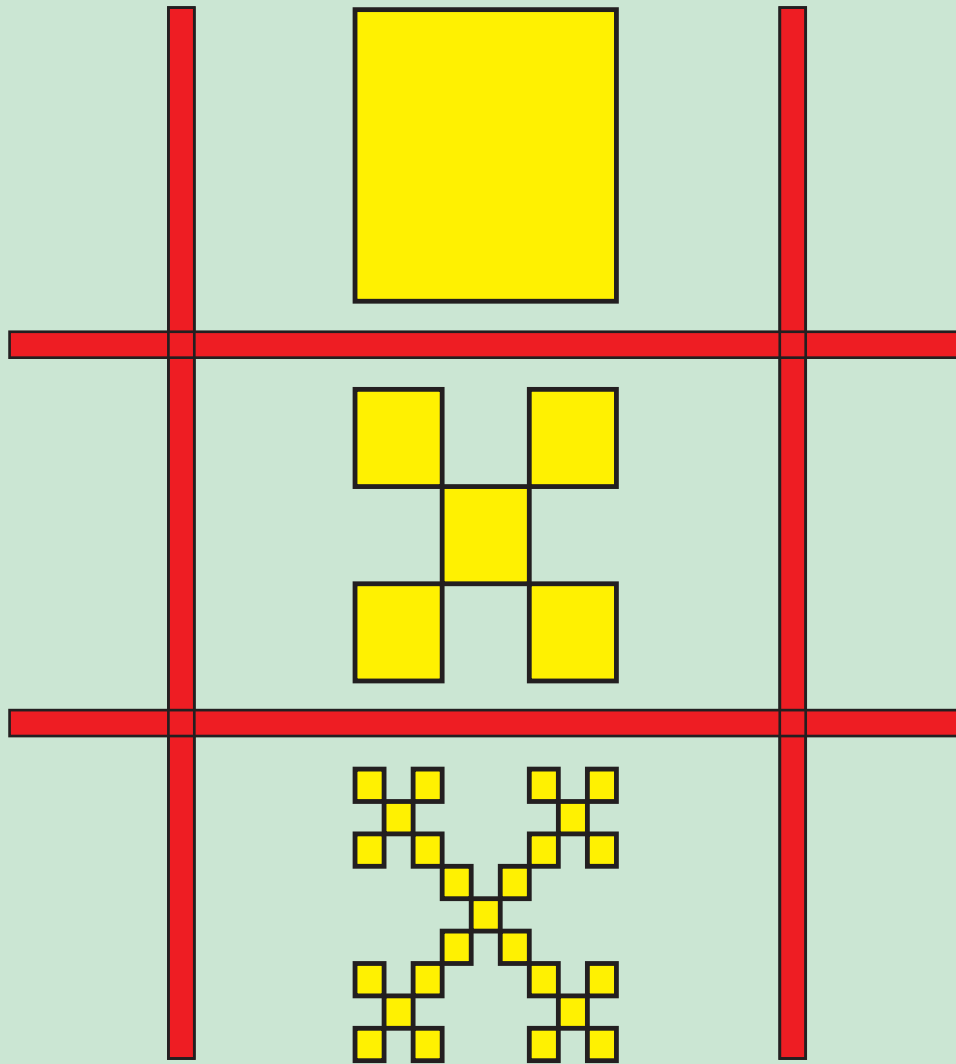




# Expoente de Mandelbrot

$$E = 1/3 \quad N = 5$$



$$D = \frac{\log N}{\log 1/E} = \frac{\log 5}{\log 3} = 1,46$$

# D

The Fractal Geometry of Nature  
W. H. Freeman and Company - 1982  
Benoît Mandelbrot

# M

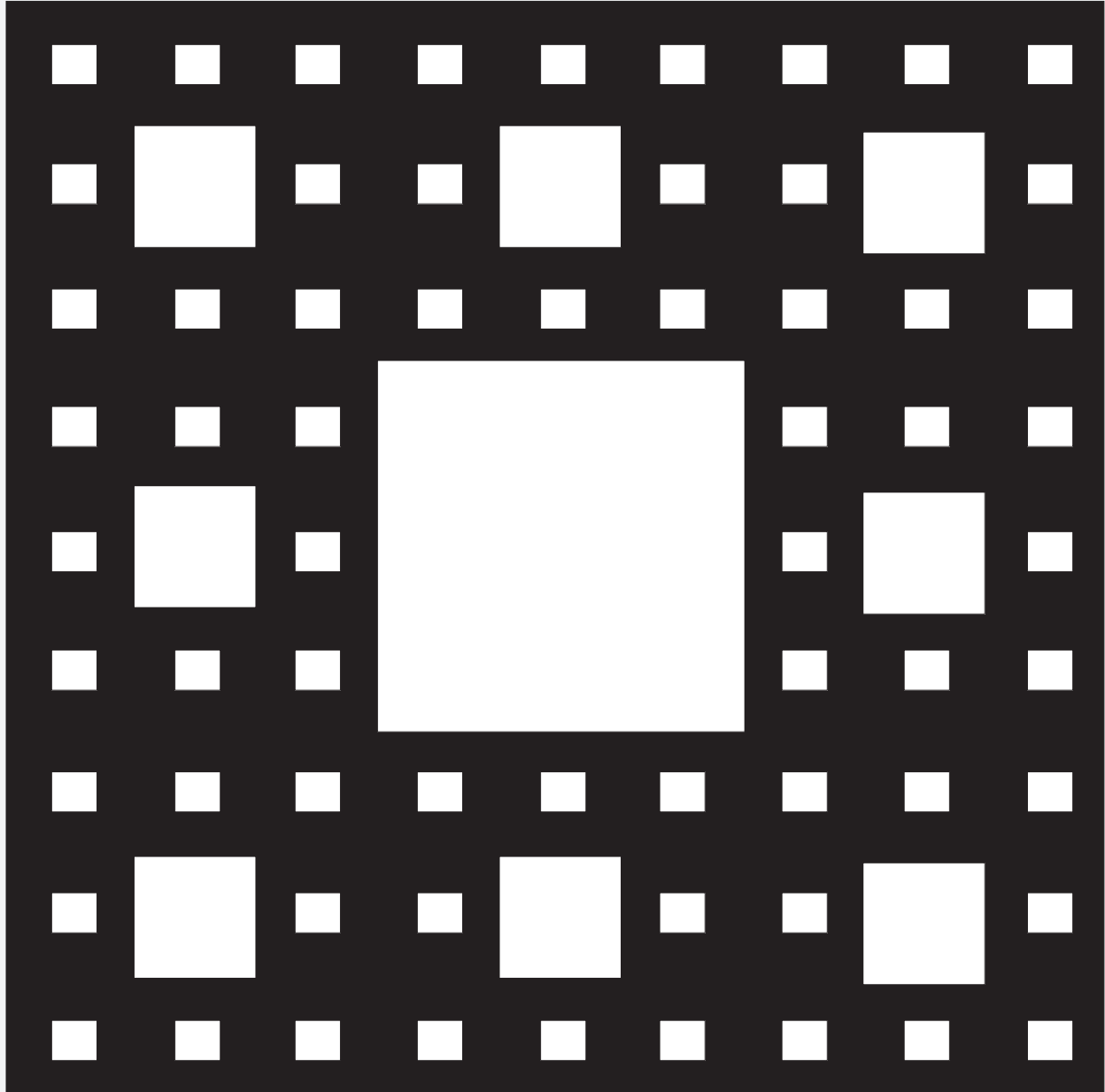


# 2.2 Tapete de Sierpinski

$$N = 8$$

$$E = 1/3$$

$$D = 1,89$$



**Courbe dont Tout Point est un Point de Ramification**

**F**

(Curva Cujos Pontos são Pontos de Ramificação)

**Comptes Rendus, 160, p. 302, 1915**

Waclaw Sierpinski (1882 - 1969)

**S**

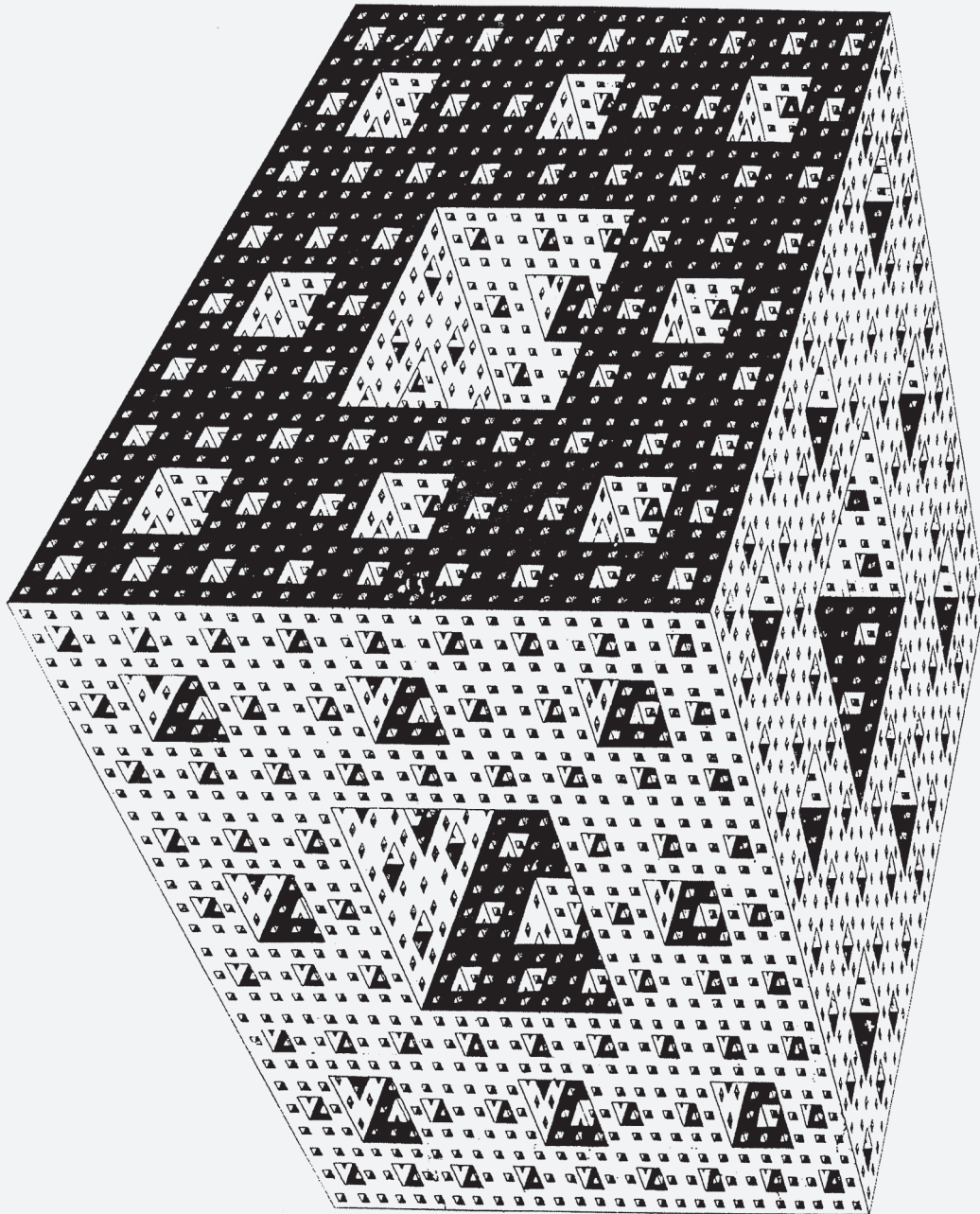


## 2.3 Esponja de Menger

$$N = 20$$

$$E = 1/3$$

$$D = 2,72$$

**F**

What is Dimension? (O que é Dimensão?)  
American Mathematical Monthly, 50, p. 7, 1943  
Karl Menger (1902 - 1985)

**M**



# 7.0 Fragmento de Curva do Tipo Stock

## 7.1 Sequência de Pontos/Curva de Bolsa de Valores

4

5

7

4

8

5

6

8

16

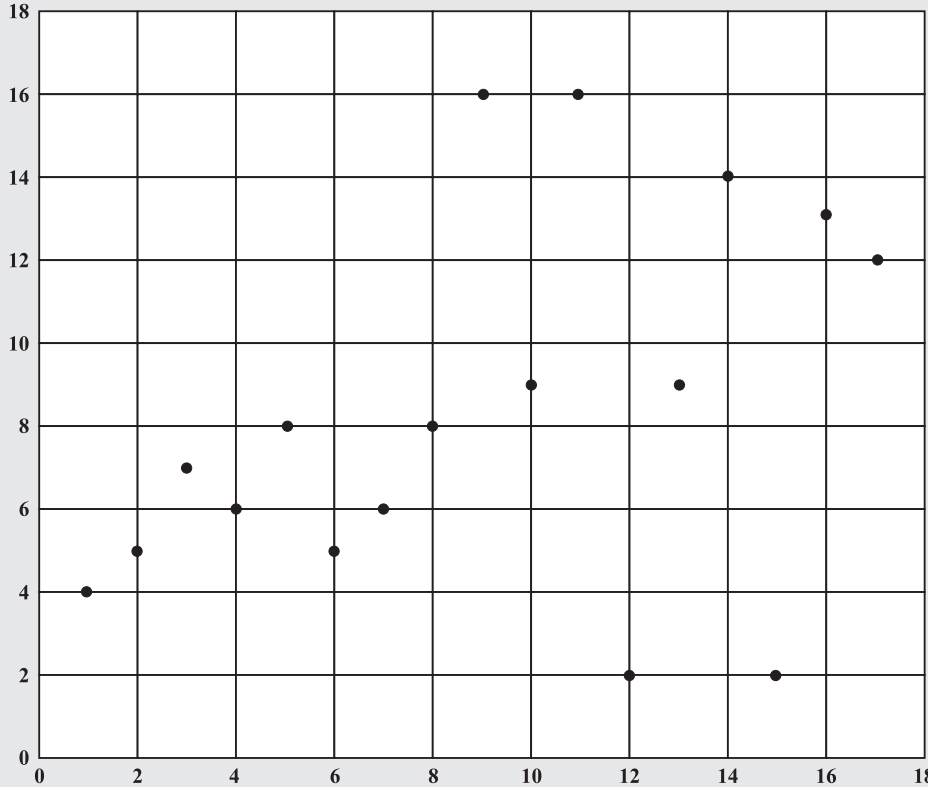


Gráfico de Pontos com H = 0,70

9

16

2

9

14

2

13

12

⋮

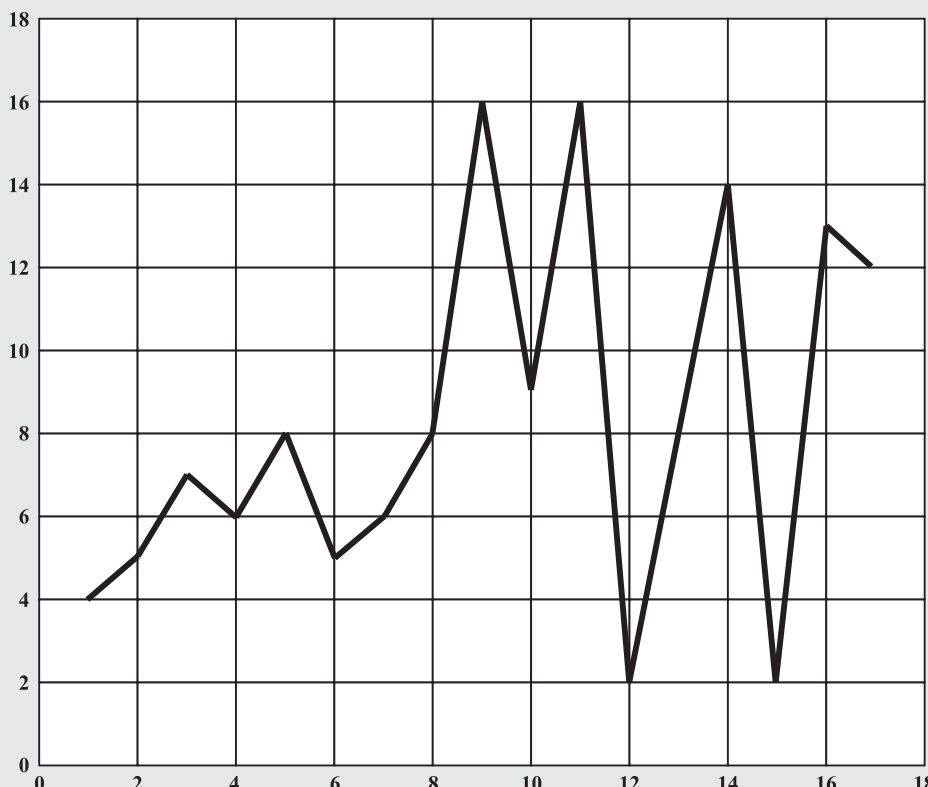
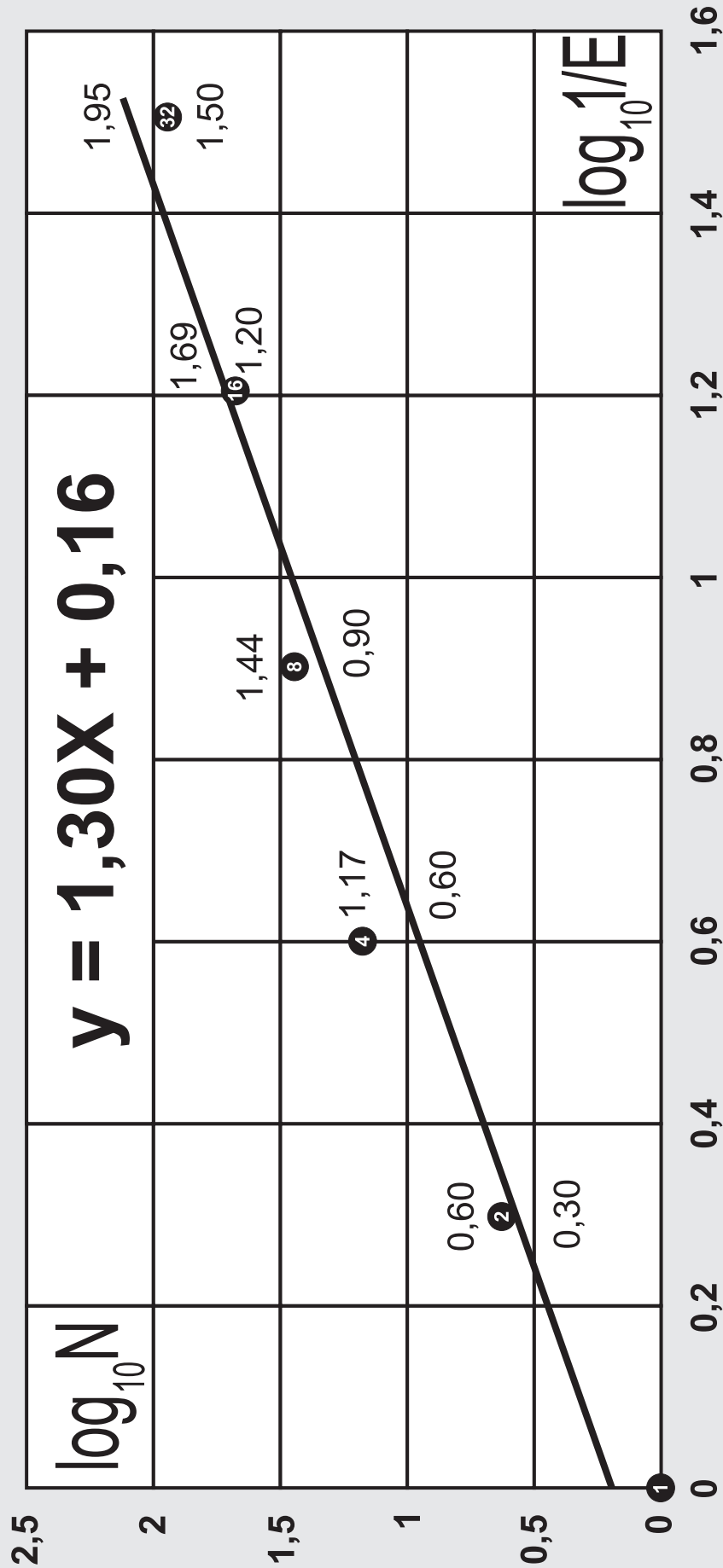


Gráfico de Linha com D = 1,30



# 7.2 Tangente (D = 1,30) da Reta do Box-Counting de Koch

$$D \approx 2 - H$$



$$1,30 \approx 2 - H$$