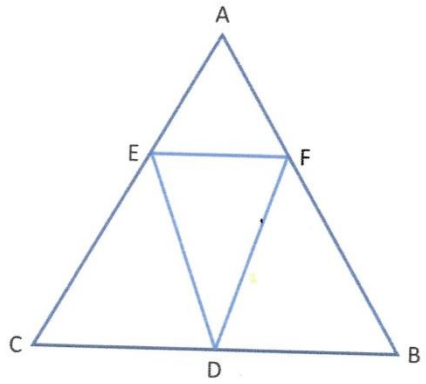
Maths puzzle from Ken Smith

ABC is an Equilateral Triangle.

DEF is an Isosceles Triangle within ABC as shown

such that EF=one third of CB and parallel to it.

What is the Ratio of the area of DEF to the area of ABC ?



Solution

Let height of triangle ABC be “h” and the length of base BC = “b”

Therefore area of ABC = ½ of bh

EF=CB/3 = b/3 and height of triangle DEF = 2h/3

Therefore area of triangle DEF = ½ x b/3.x 2h/3 = bh/9

Therefore Ratio of areas = (bh/9) / (bh/2) = 2/9
