


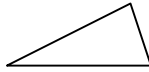
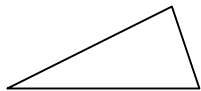
2014/15 第十屆香港小學數學創意解難比賽
決賽 - 解難實驗

2014/15 The 10th HK Mathematics Creative Problem Solving Competition
for Primary School (Final – Problem Investigation)

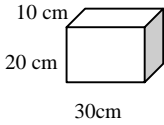
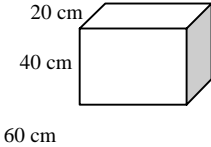
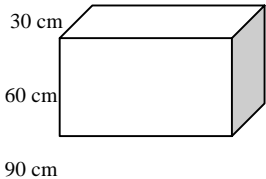
1.

	1m	3m	5m
Weight of the wire 電線重量	15g	$3 \times 15 = 45g$ [1A]	$5 \times 15 = 75g$ [1A]

2.

	1m	3m	5m
			
Weight of the triangular plank 三角木板的重量	$50/5^2 = 2kg$ [1A]	$50/(5/3)^2 = 18kg$ [1A]	50kg

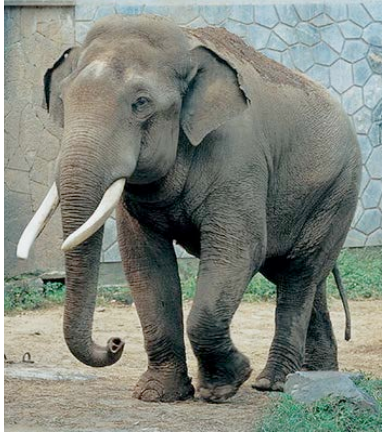

3.

			
Weight of the cuboid 長方體的重量	$8/2^3 = 1kg$ [1A]	8kg	$8 \times (3/2)^3 = 27kg$ [1A]

4.

Object 物件	The relationship between weight and size 重量和大小關係
Wire 電線	Weight is proportional to the length [1A]
Triangular plank 三角木板	Weight is proportional to the square of length [1A]
Cuboid 長方體	Weight is proportional to the cube of length [1A]

5.

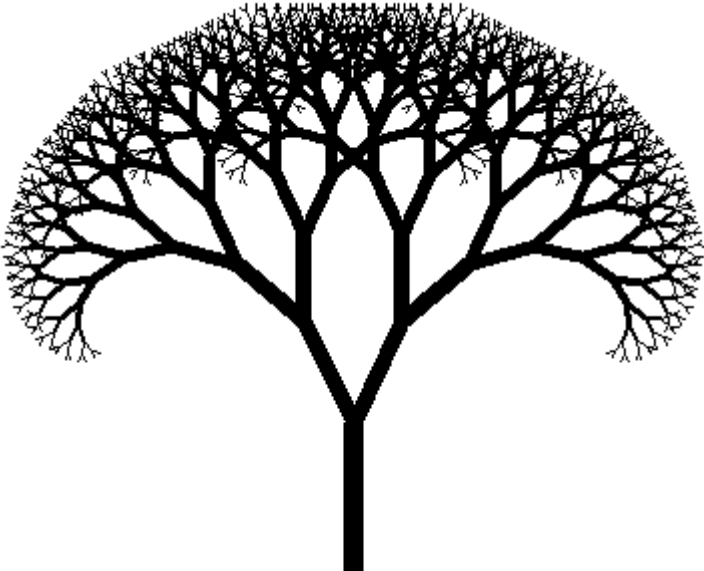
	 <p>3.5m tall Asian elephant 3.5m 高的亞洲象</p>	 <p>4m tall African elephant 4m 高的非洲象</p>
<p>Weight of the elephant 大象的重量</p>	<p>4700kg</p>	<p>$4700 * (4/3.5)^3 = 7016kg$ <i>[1A+2M]</i></p>

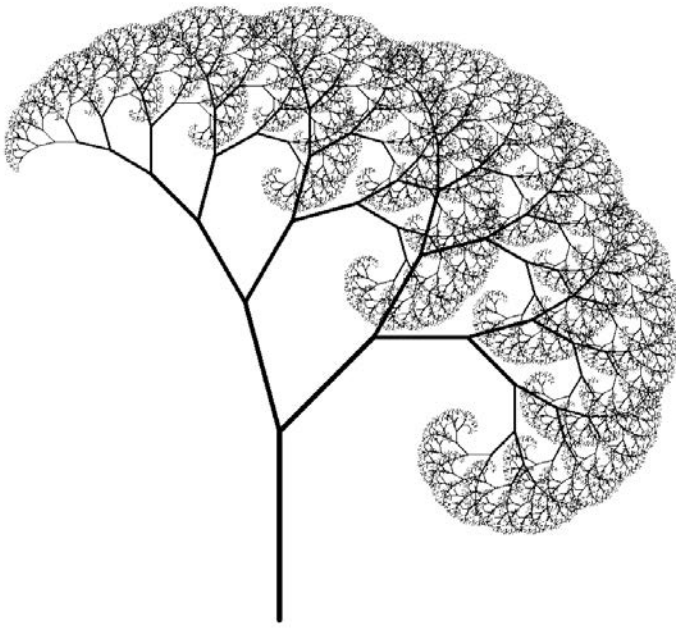
6. 4 times *[2A]*

7. 9 times *[2A]*

8. 4 times *[2A]*

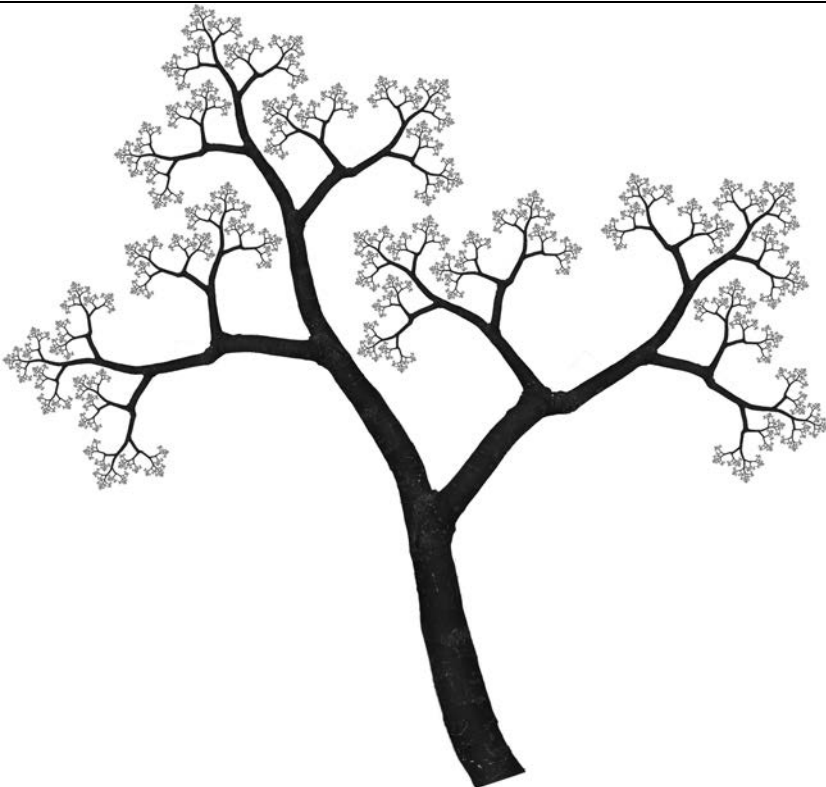
9.

	<ol style="list-style-type: none"> 1. Split the branch in to two equal branches of half the original length symmetrically, say 30o apart. 2. Repeat the 1 for each newly generated branch. <p><i>[2A+1A(for clear presentation)]</i></p>
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1. Split the branch in to two equal branches of half the original length asymmetrically; say 10o and 20o from the line of original branch.
2. Repeat the 1 for each newly generated branch.

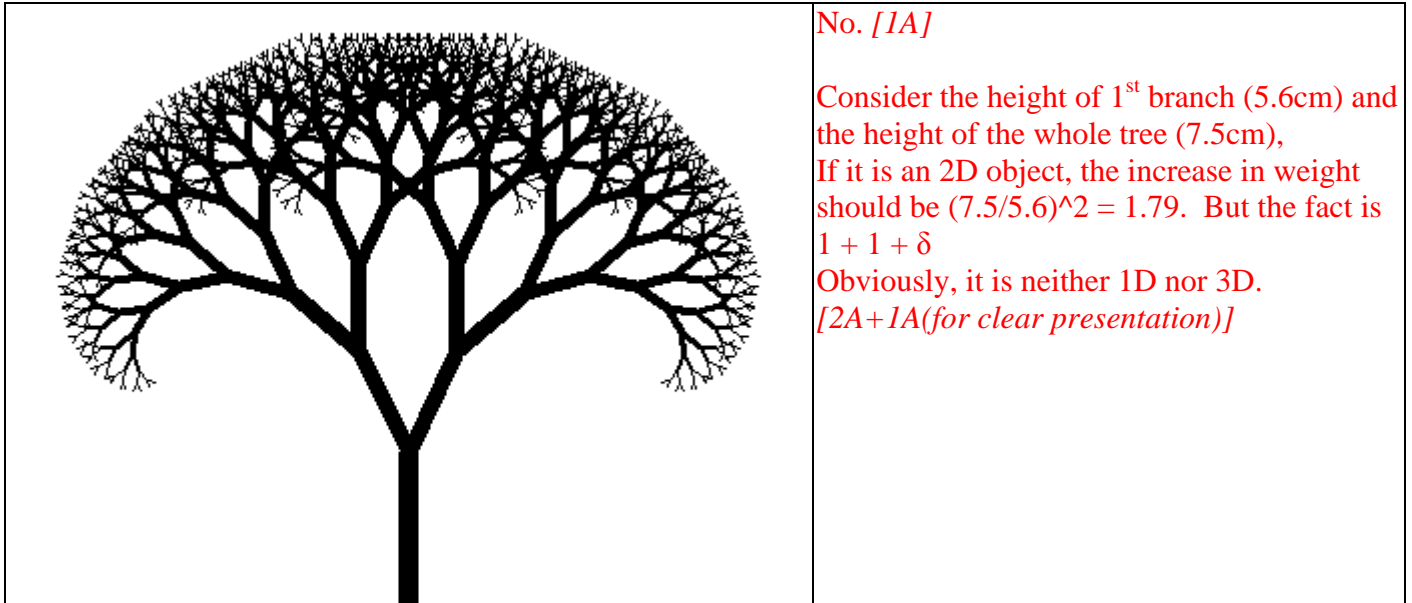
[2A+1A(for clear presentation)]



1. Split the branch in to two unequal branches of shorter length. But the orientation is assigned alternatively.
2. Repeat the 1 for each newly generated branch.

[2A+1A(for clear presentation)]

10.



11. Consider $5.0/1.6 = 3.125 \approx 3$, the weight ratio = $183/14.3 = 12.8$

Notice $15/5.0 = 3$, the weight ratio $M/183 \approx 12.8$,

$\therefore M = 2342\text{kg}$

[2A+2M]