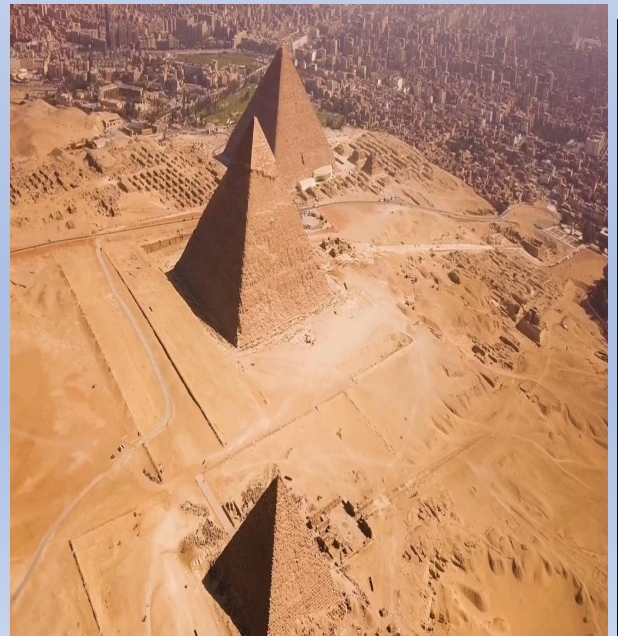
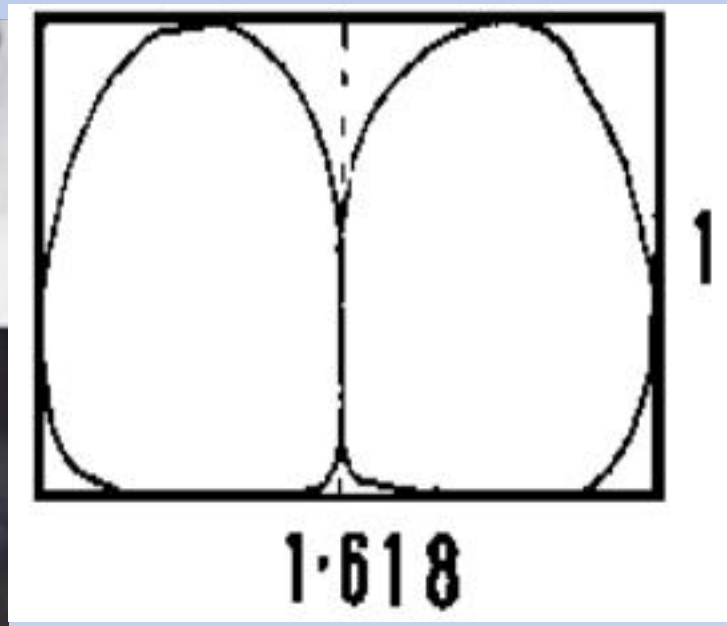
Golden Number (Φ), Golden Ratio and Fibonacci Sequance and chief applications



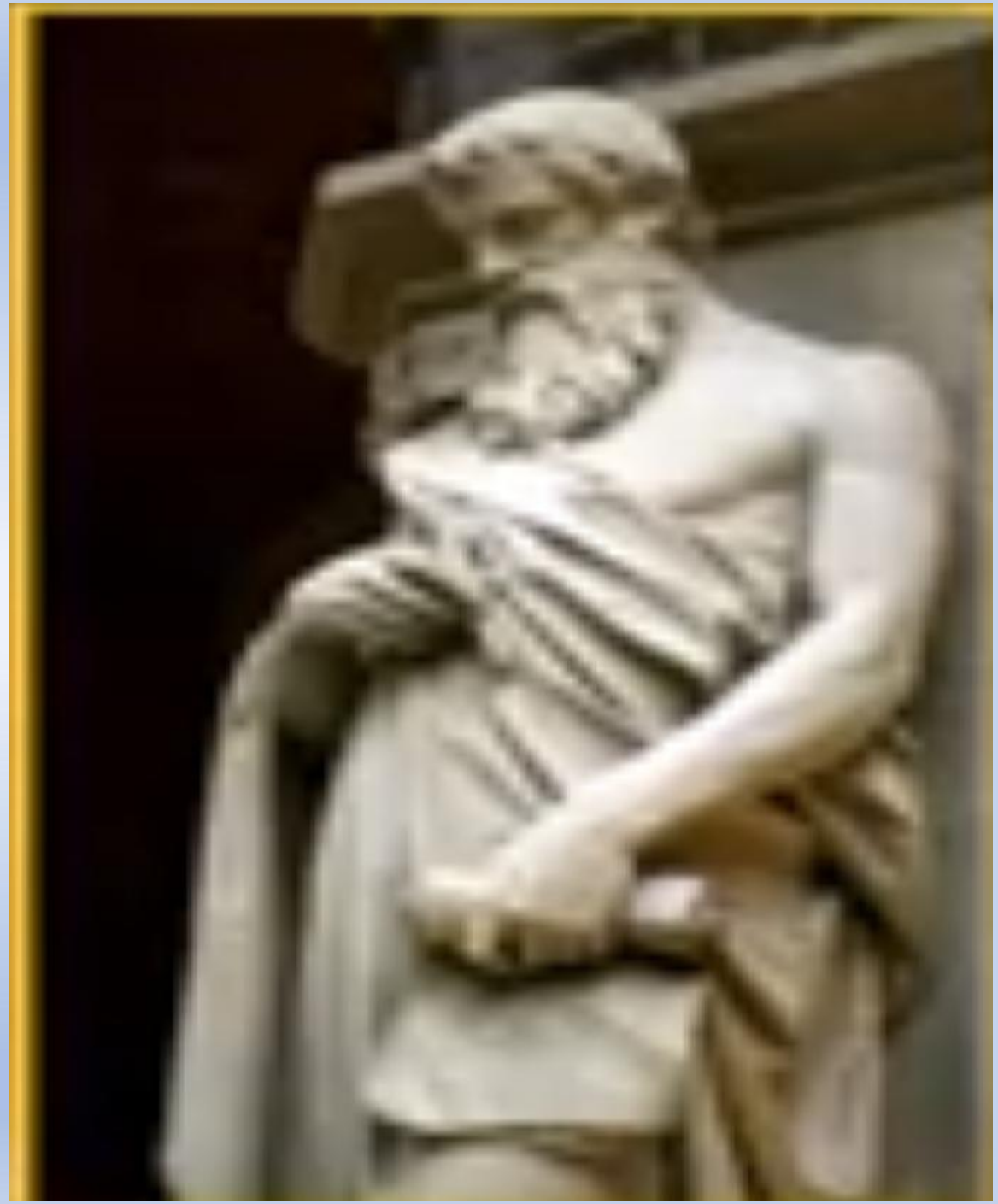


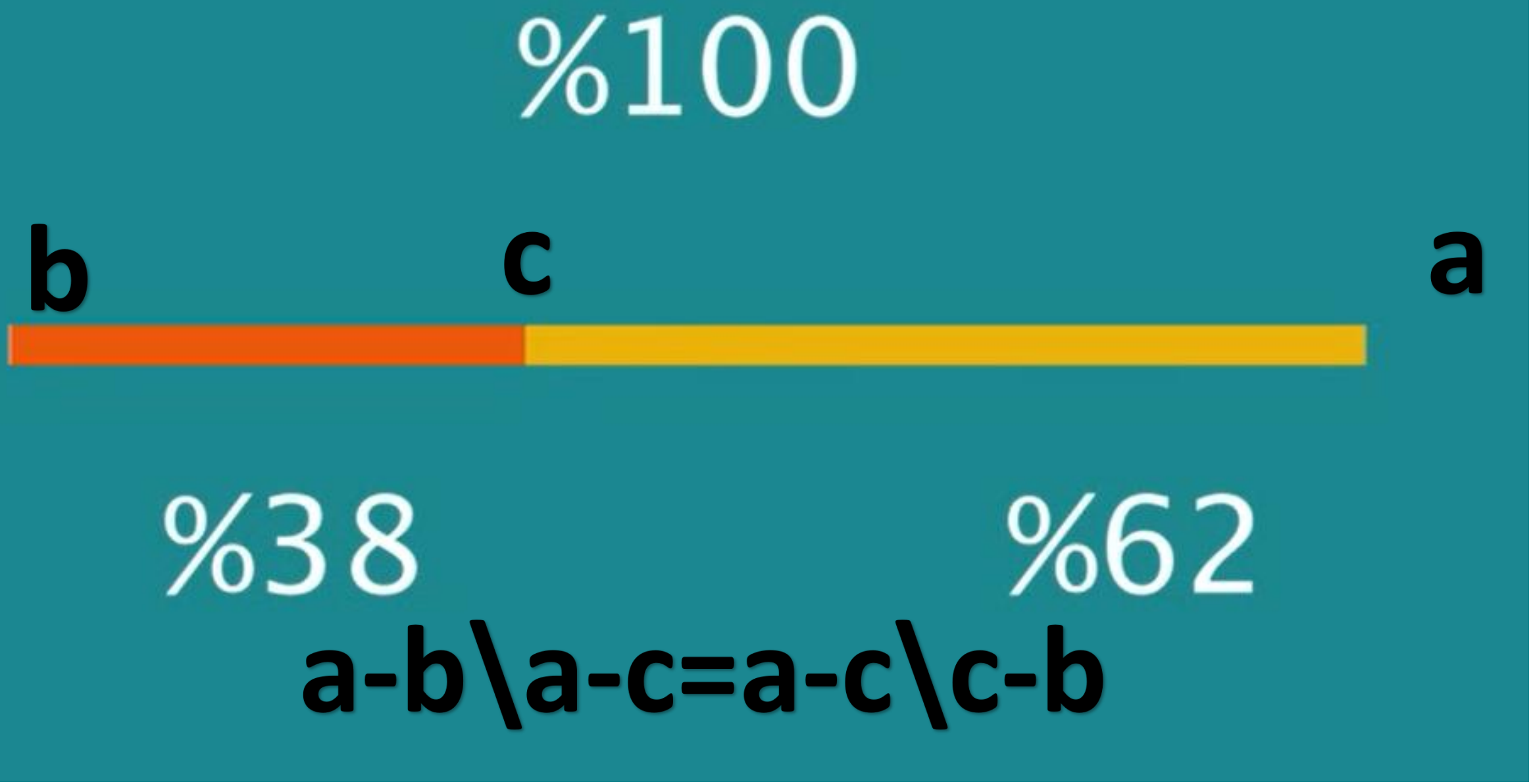
Beauty is a value linked to instinct passion and positive feeling and the harmony of all these things with nature .

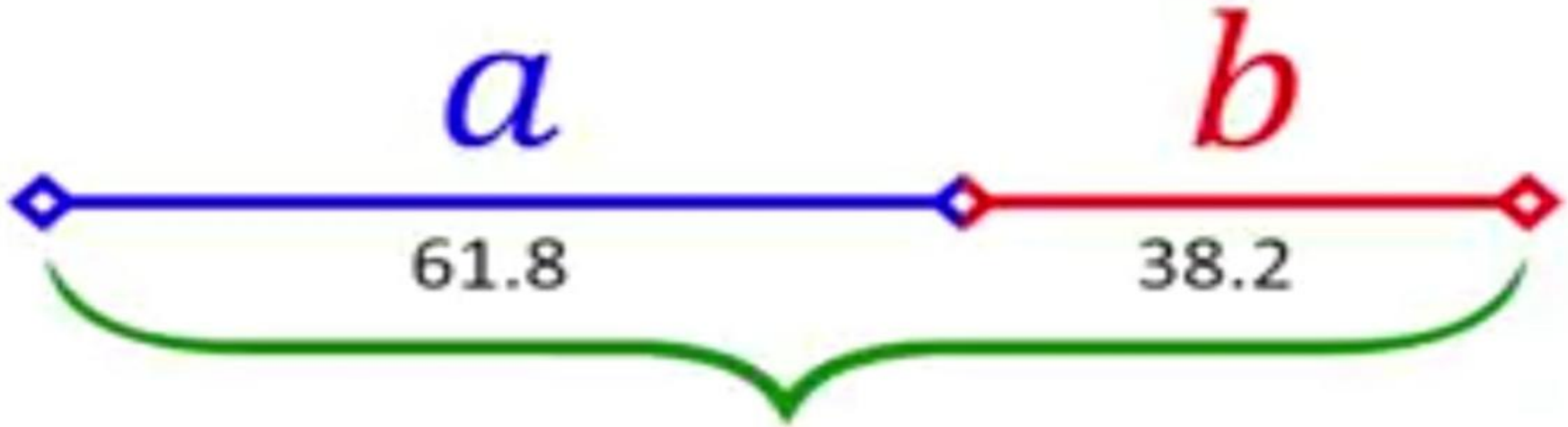
- That`s why standards of beauty differ from one to anther but surely they agree that this beautiful thing must be related to nature . It is ruled that nature is different from place to place, The difference in Beauty standard is logical but surely there are rules that maintain the continuity of nature itself no matter how didderent and that`s why these rules if we can notice them we analyze and use them in our life will be better and more beautiful among these is many rules is golden number and golden ratio (1.61803398875).

History

Euclids (2300years ago) Mathematician in Alexandria




%100
b
c
a
%38
%62
a-b\a-c=a-c\c-b



$$\frac{a}{b} = \frac{a+b}{a} = 1.618$$

Phi=1.618033988...

$$\varphi = (1+\sqrt{5})/2$$

$$\varphi \times \varphi = \varphi^2$$

$$1.61803398875 \times 1.61803398875 = 2.61803398875$$

$$1.61803398875 + 1 = 2.61803398875$$

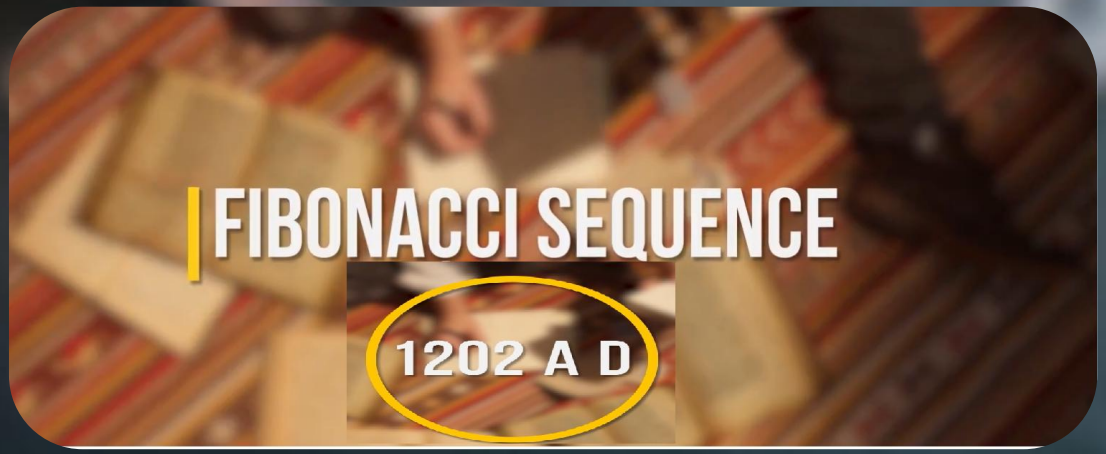
$$\frac{1}{\varphi} = \varphi - 1$$

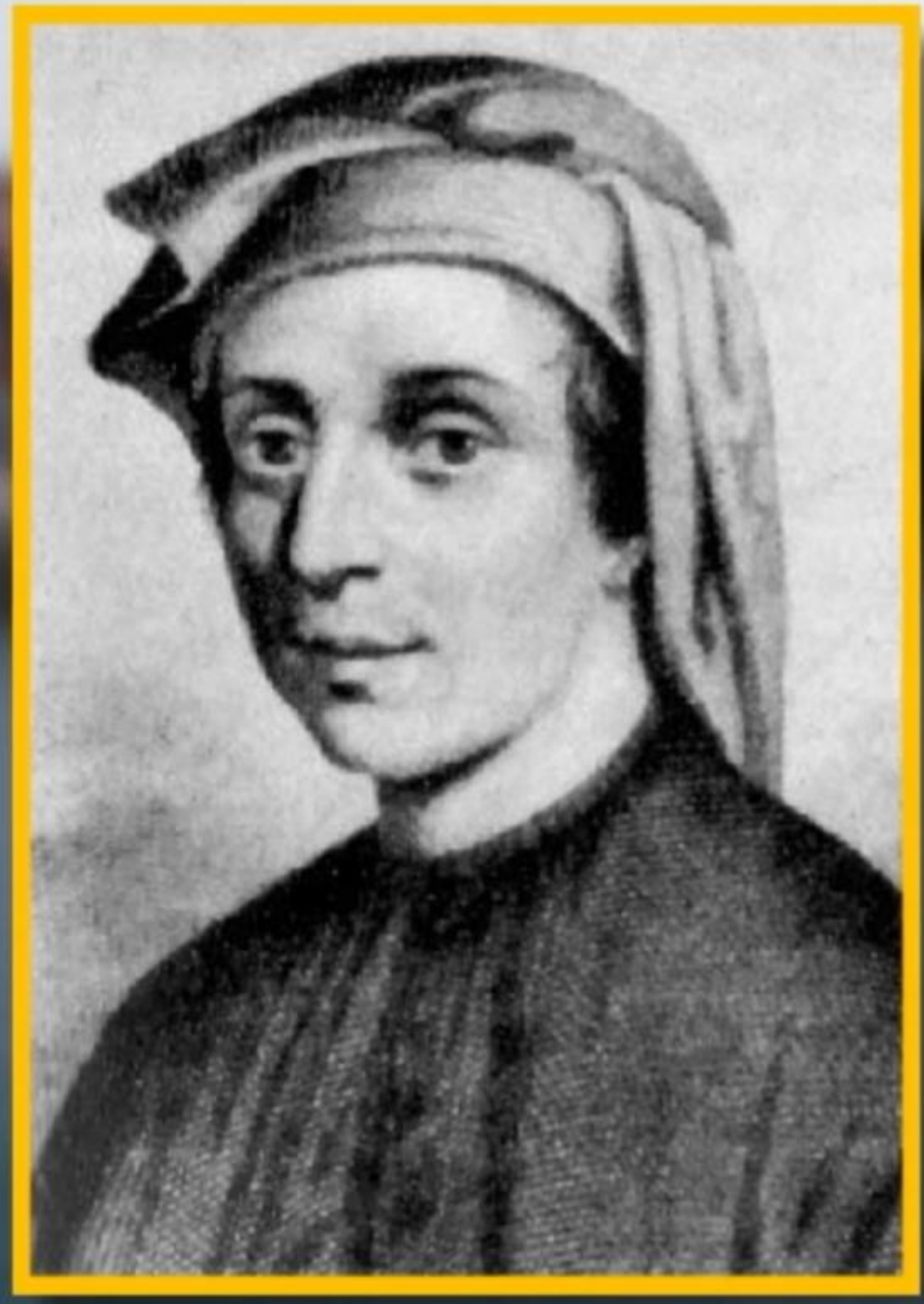
$$1 \div 1.61803398875 = 0.61803398875$$

$$1.61803398875 - 1 = 0.61803398875$$

Leonardo Fibonacci

ليوناردو فيبوناتشي





Fibonacci sequence

$F_1 = 1$

$F_2 = 1$

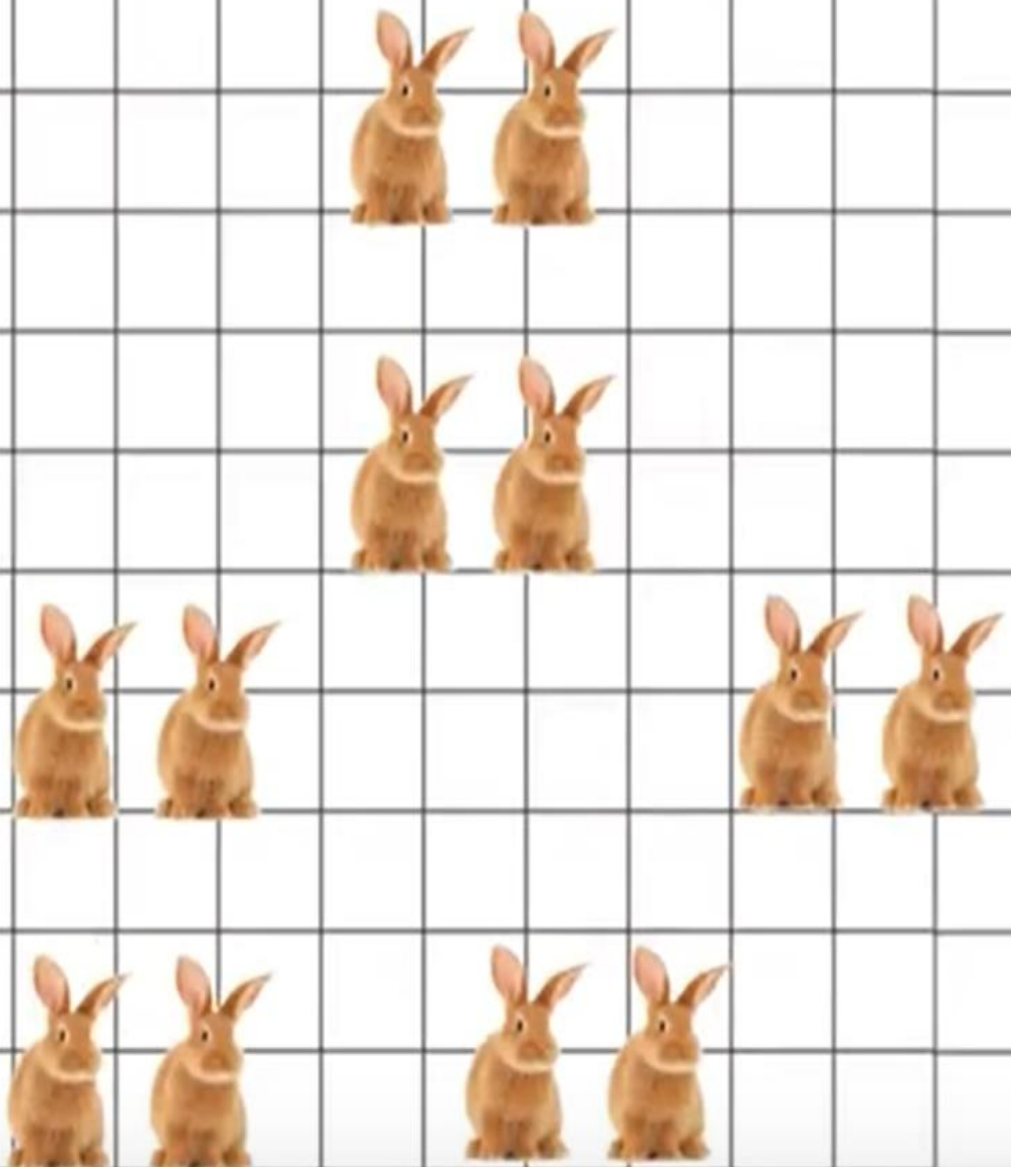
$F_3 = 2$

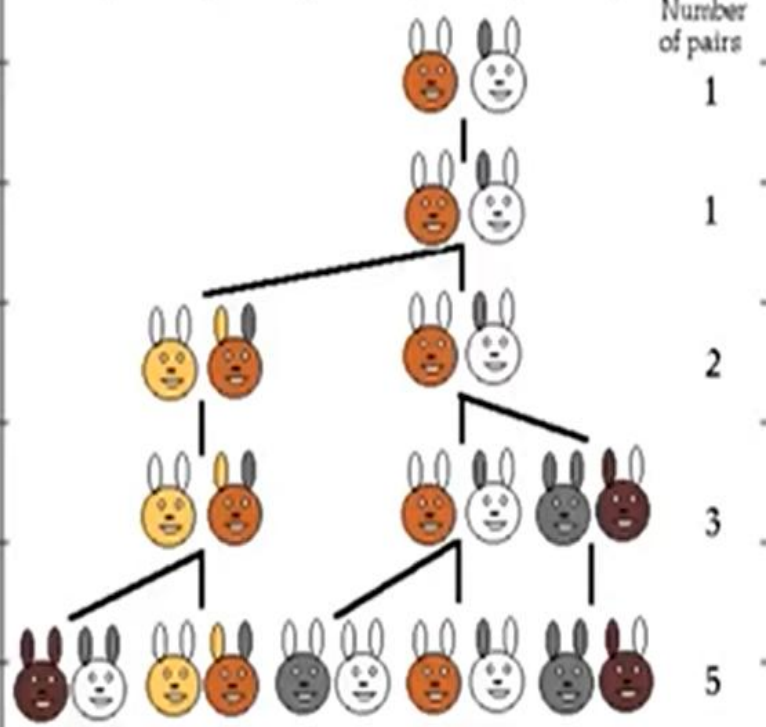
$F_4 = 3$

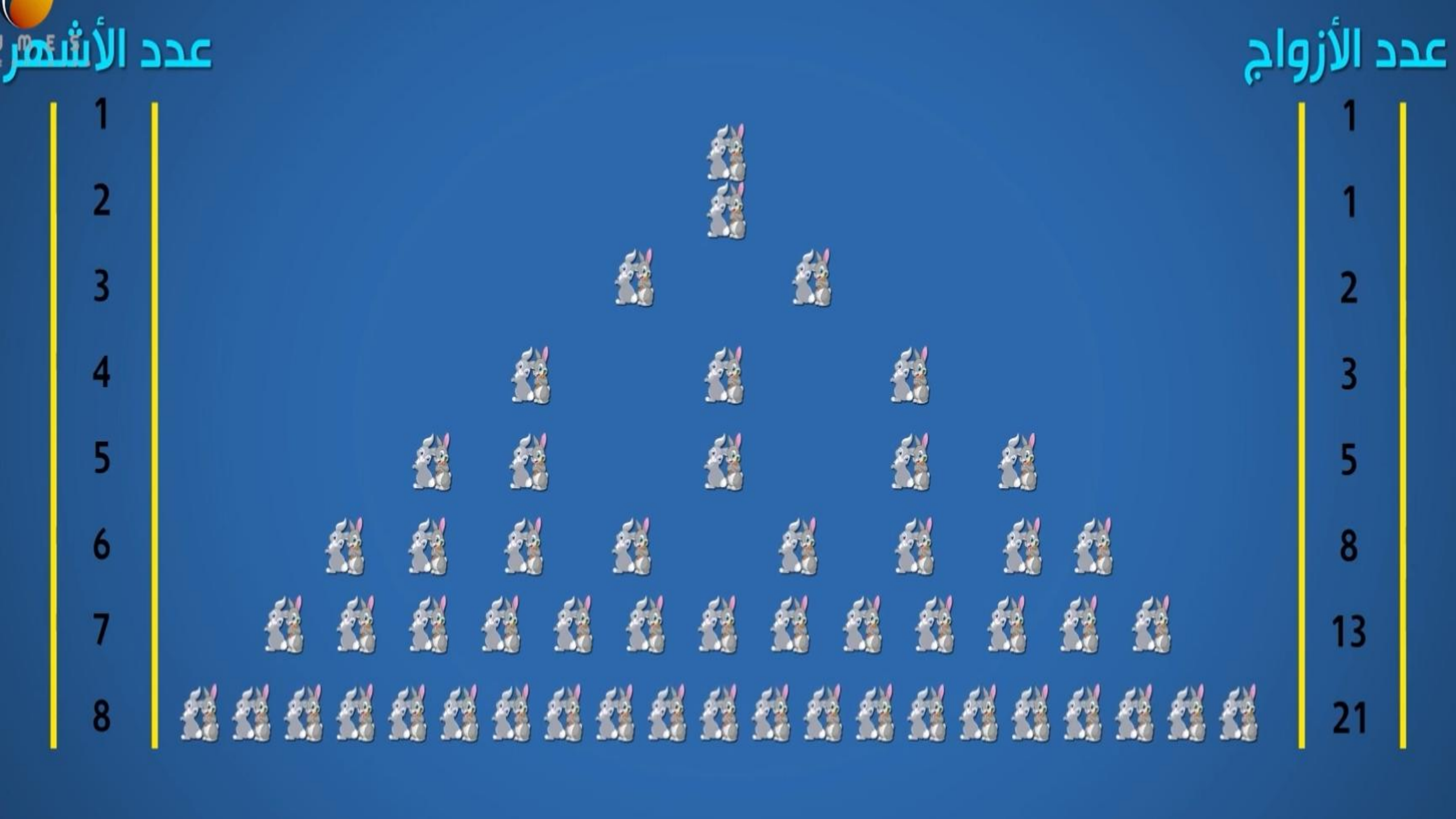
$F_5 = 5$

$F_6 = 8$

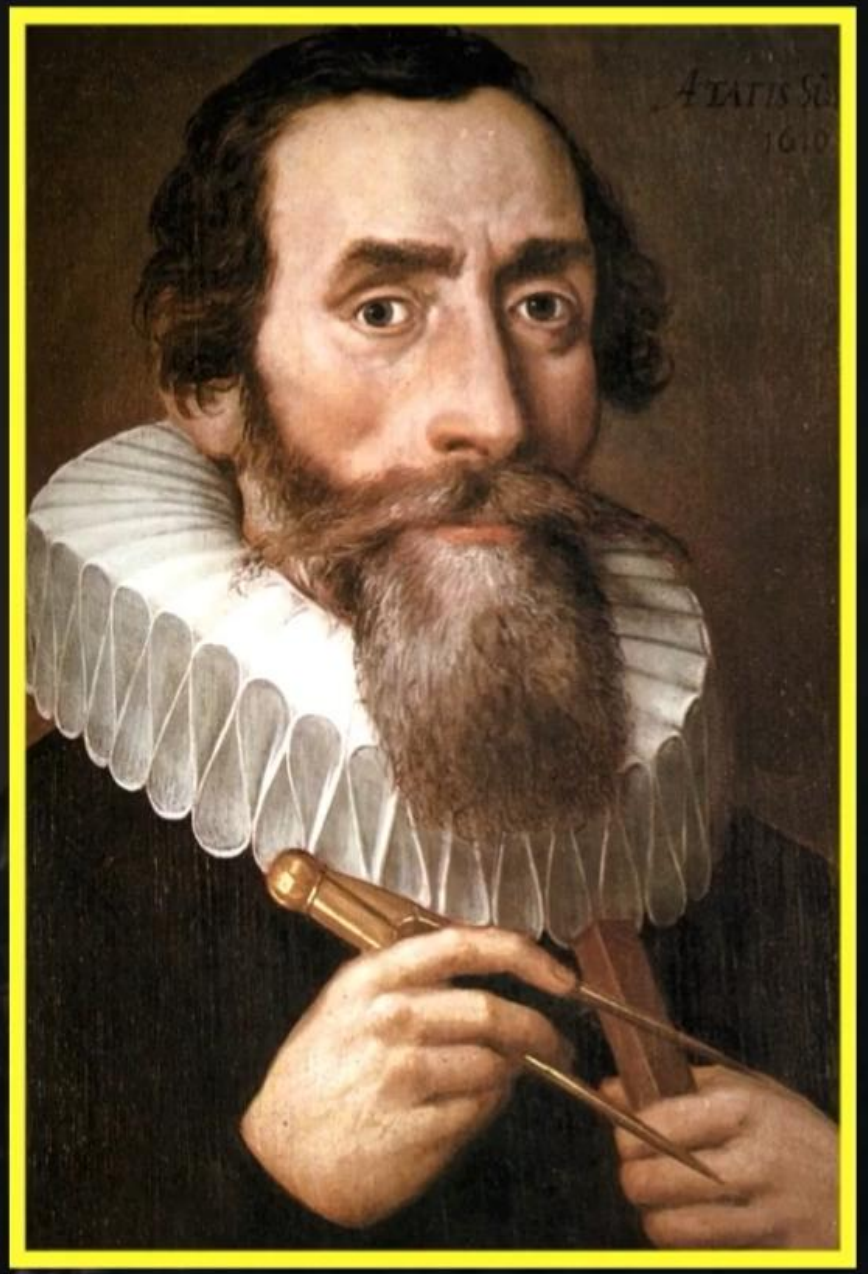
$\vdots$

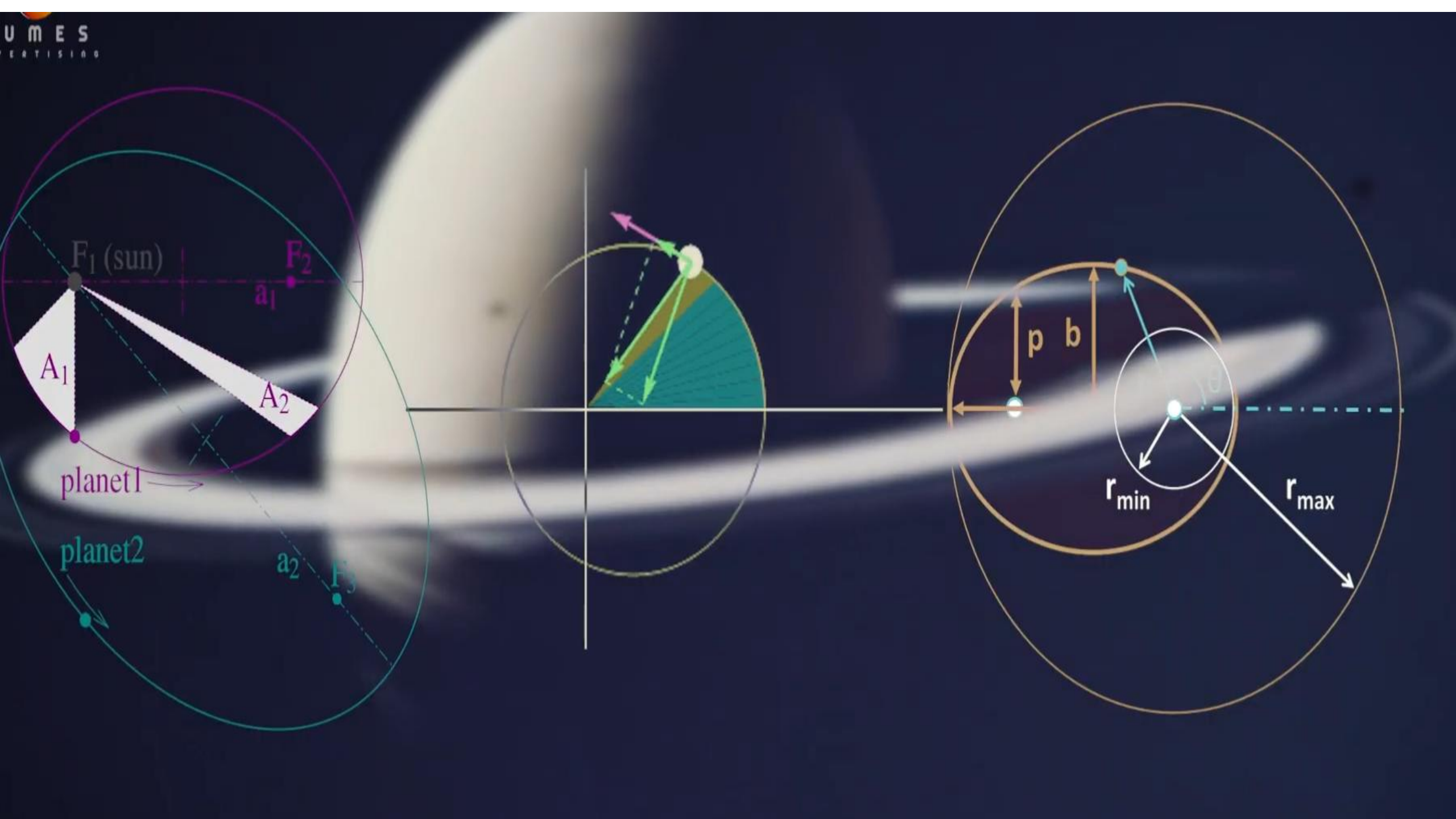





عدد الأشهر
عدد الأزواج
1
2
3
4
5
6
7
8
1
1
2
3
5
8
13
21

Johannes Kepler




F1 (sun)
F2
a1
A1
A2
planet1
planet2
a2
F3
p
b
rmin
rmax

1+1=2

1+2=3

2+3=5

3+5=8

5+8=13

8+13=21

13+21=34

21+34=55

• • •

The Fibonacci Sequence

$$1.618 = 13 / 21$$

$$1.618 = 21 / (13+21)$$

0 1 1 2 3 5 8 13 21 34 55 89 144

1/1 = 1

2/1 = 2

3/2 = 1.5

5/3 = 1.667

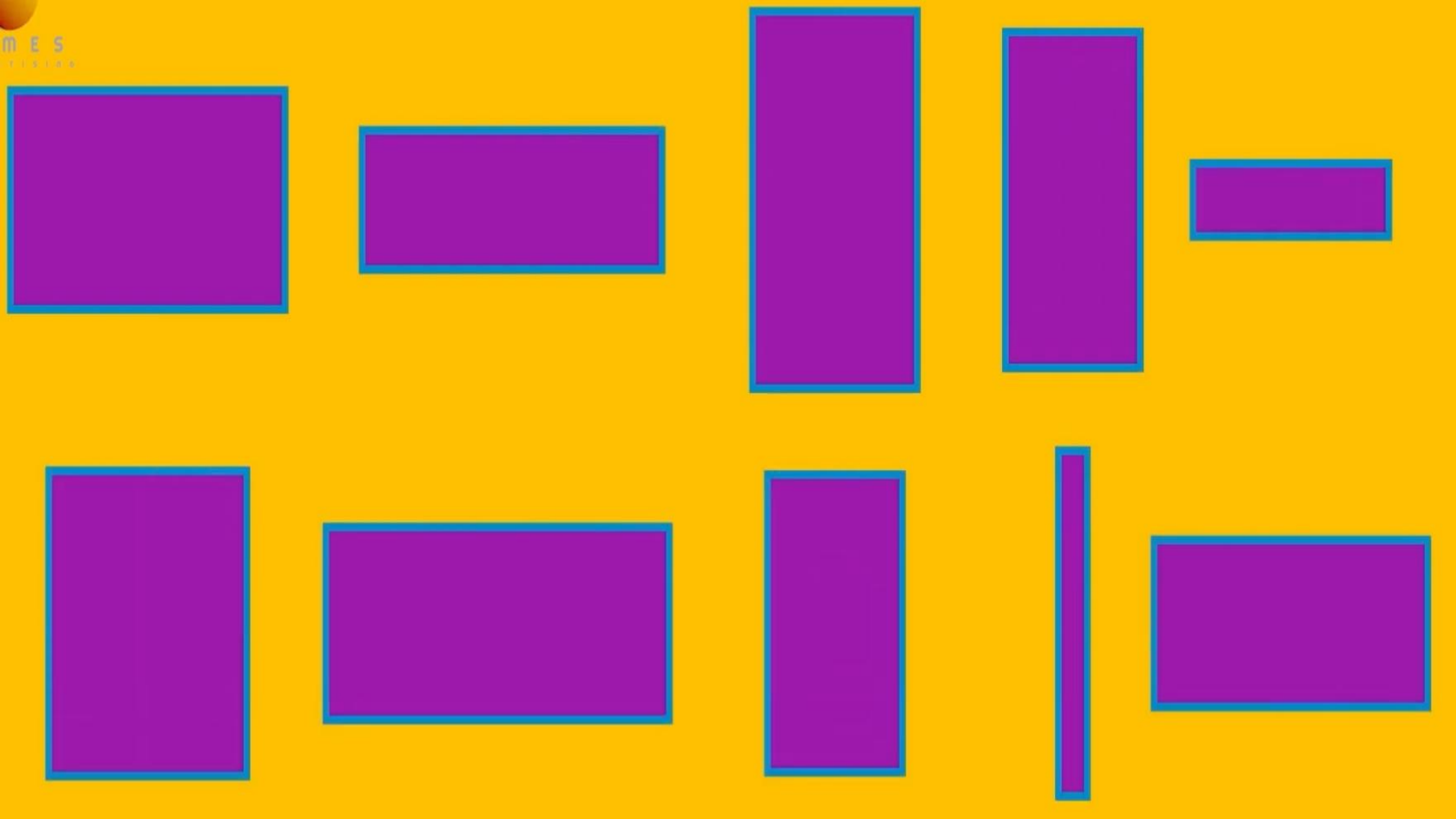
8/5 = 1.6

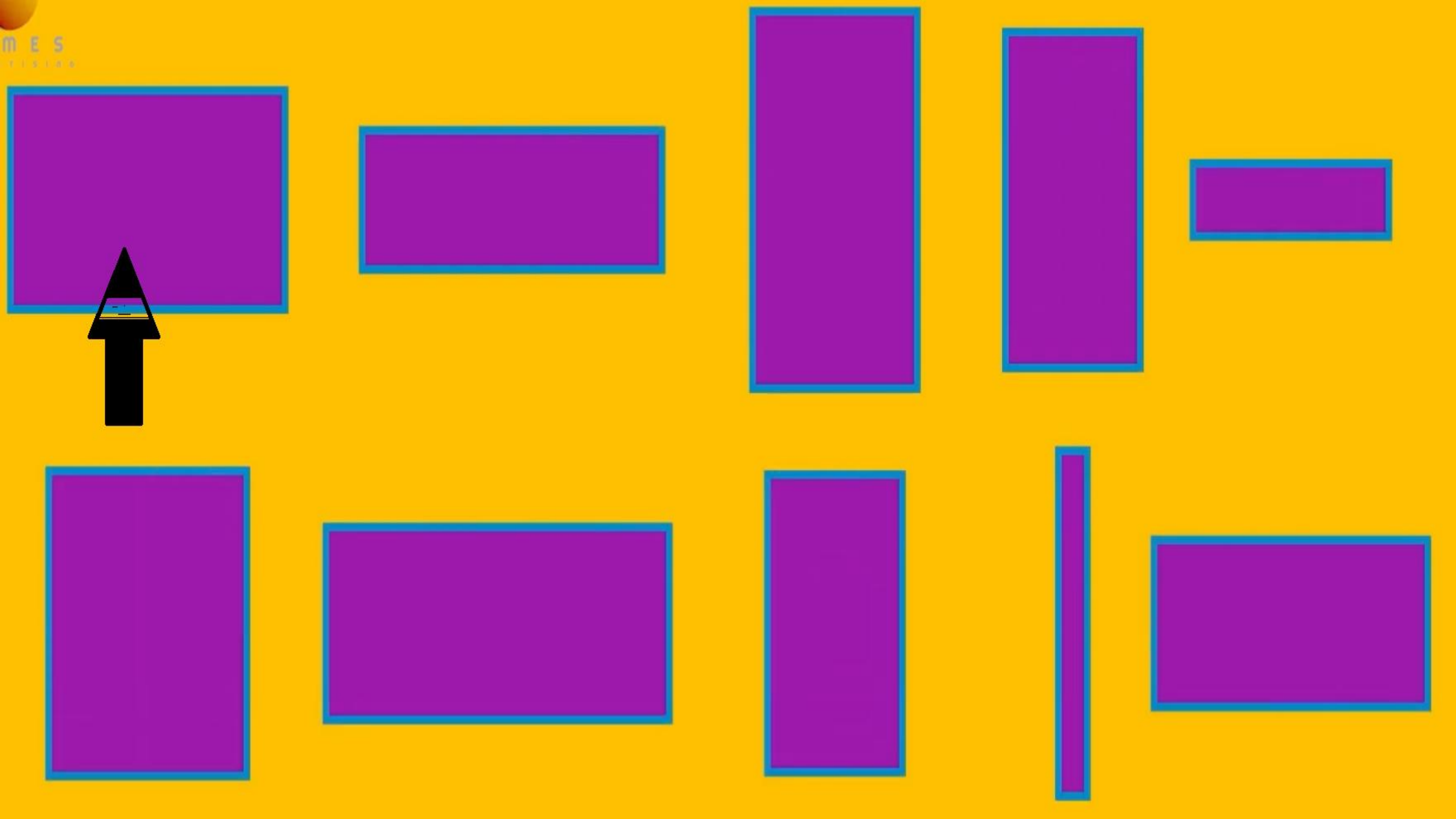
13/8 = 1.625

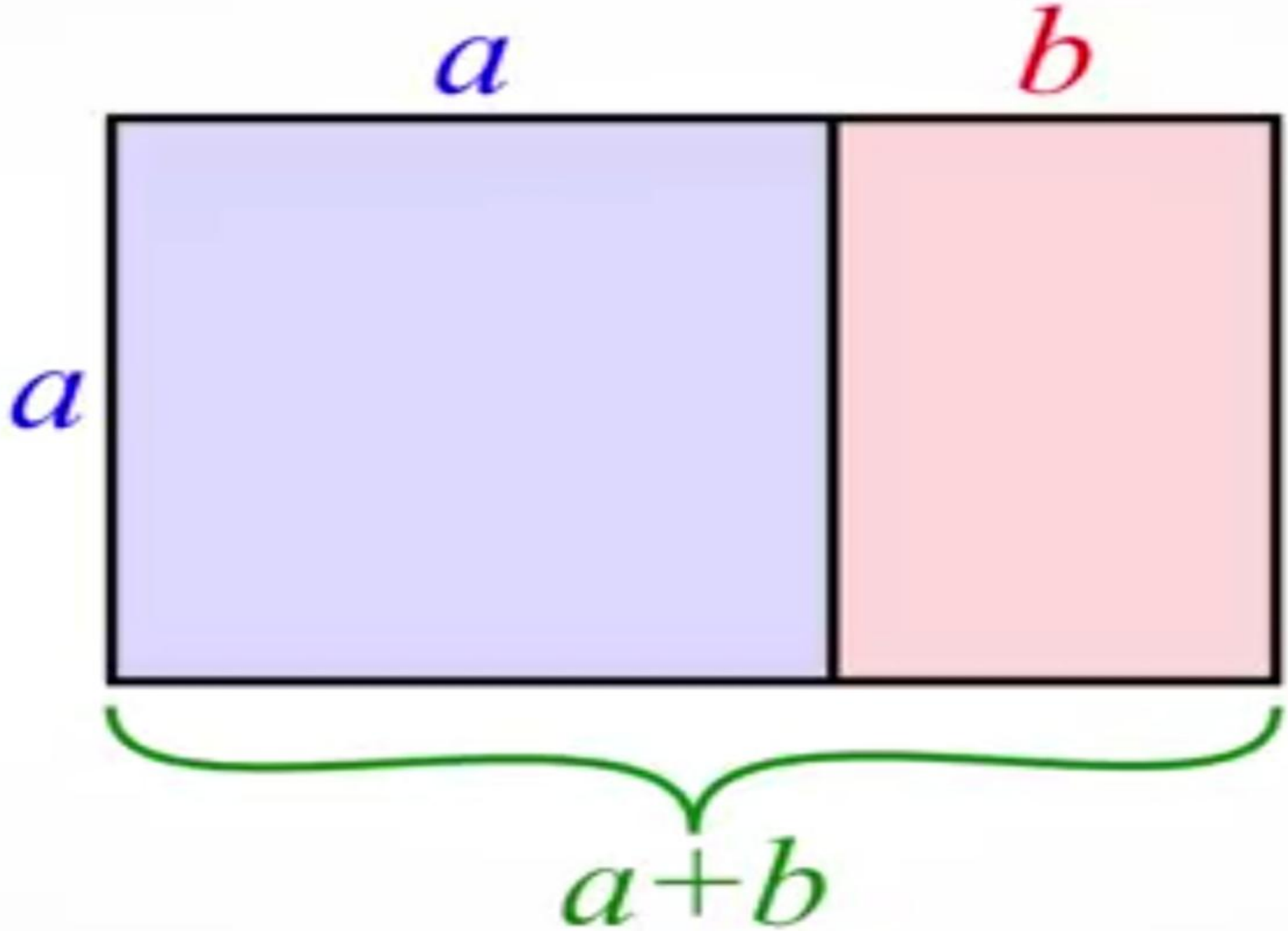
21/13 = 1.615

34/21 = 1.619

55/34 = 1.618





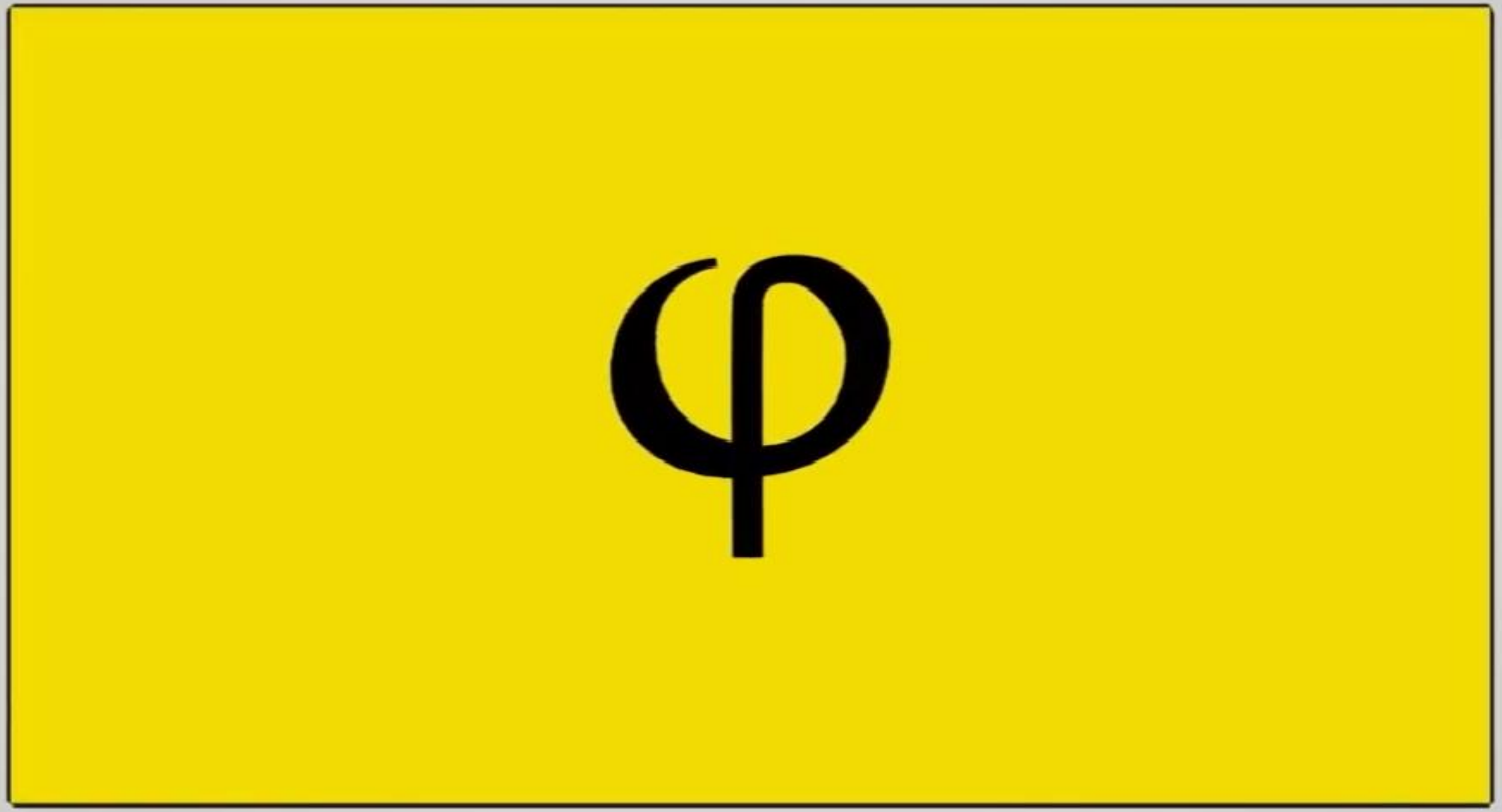

a
b
a
a+b

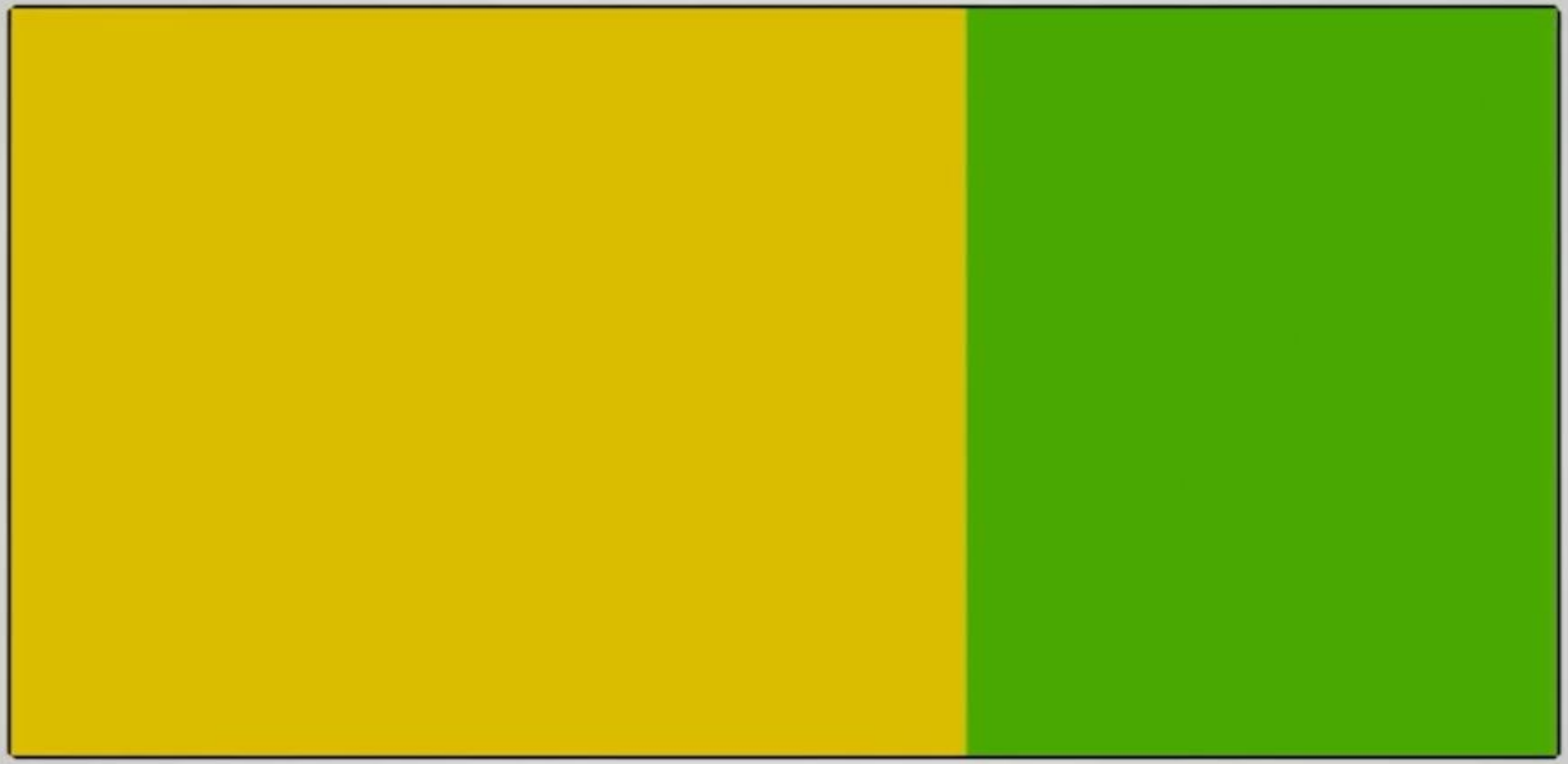
$$a \div 1.618 = b + a = a$$

a

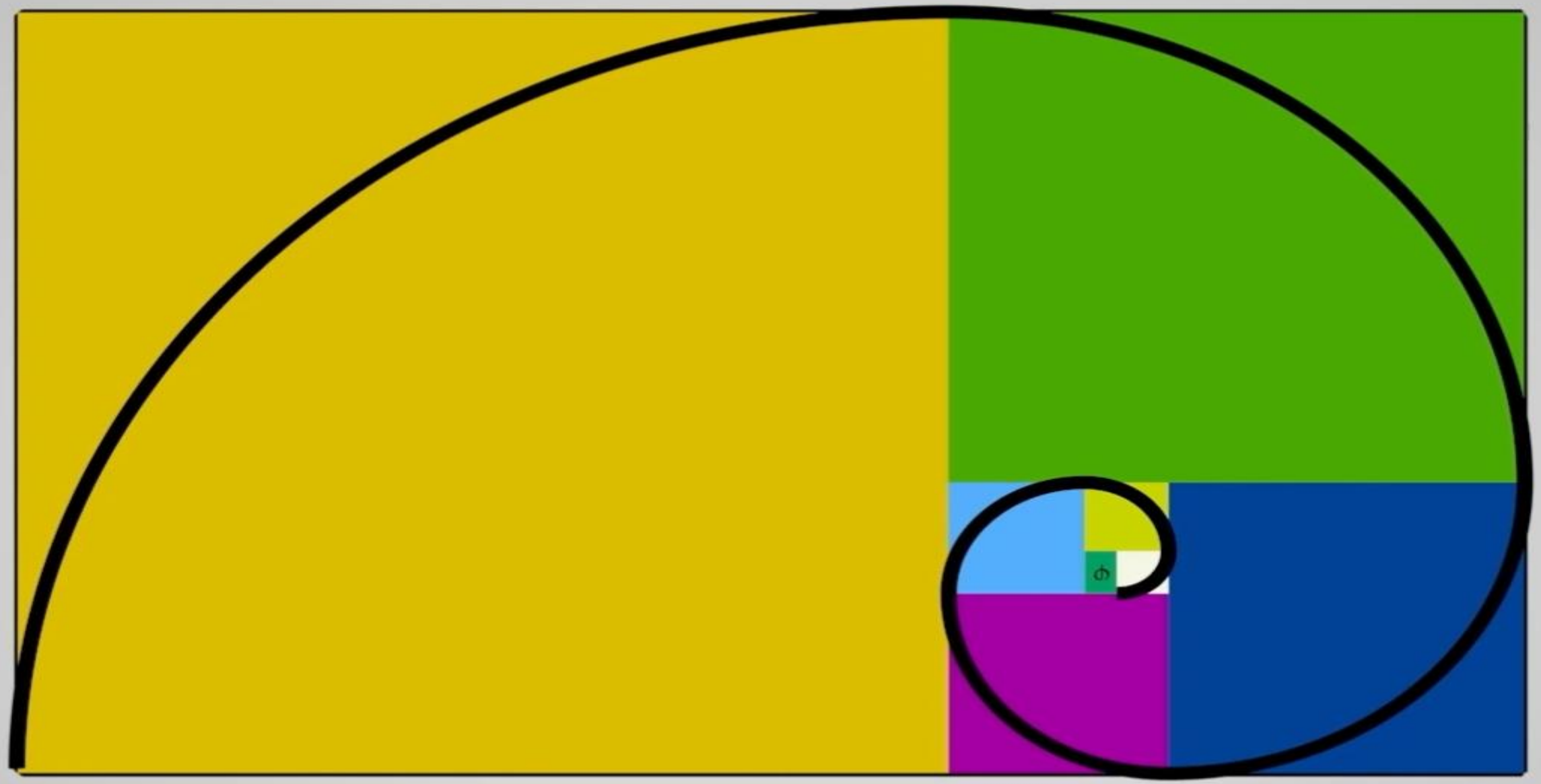
- a

$$\frac{a+b}{a} = \frac{a}{b} \qquad \frac{a}{b} = \frac{a+b}{a} = 1.618$$

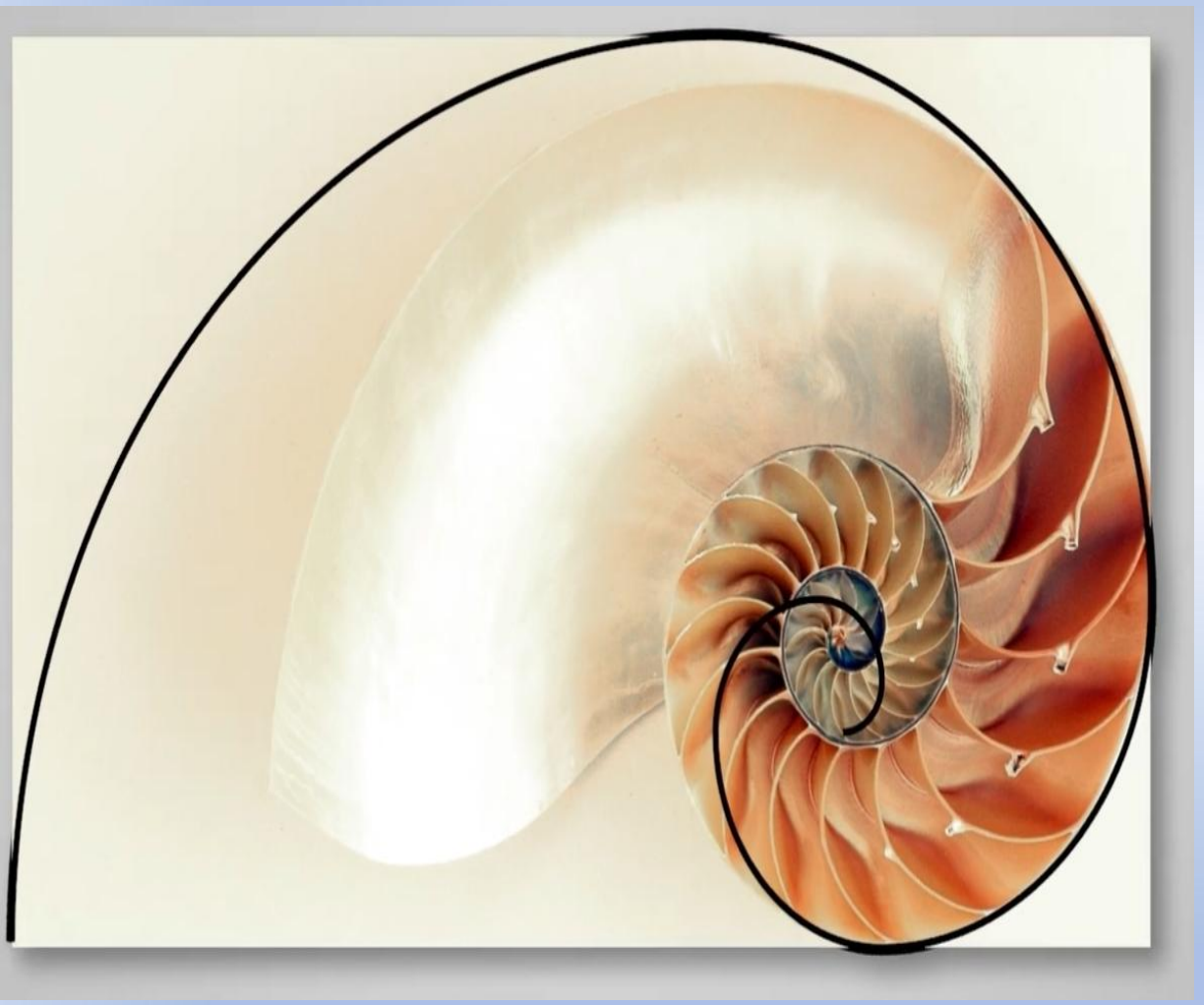


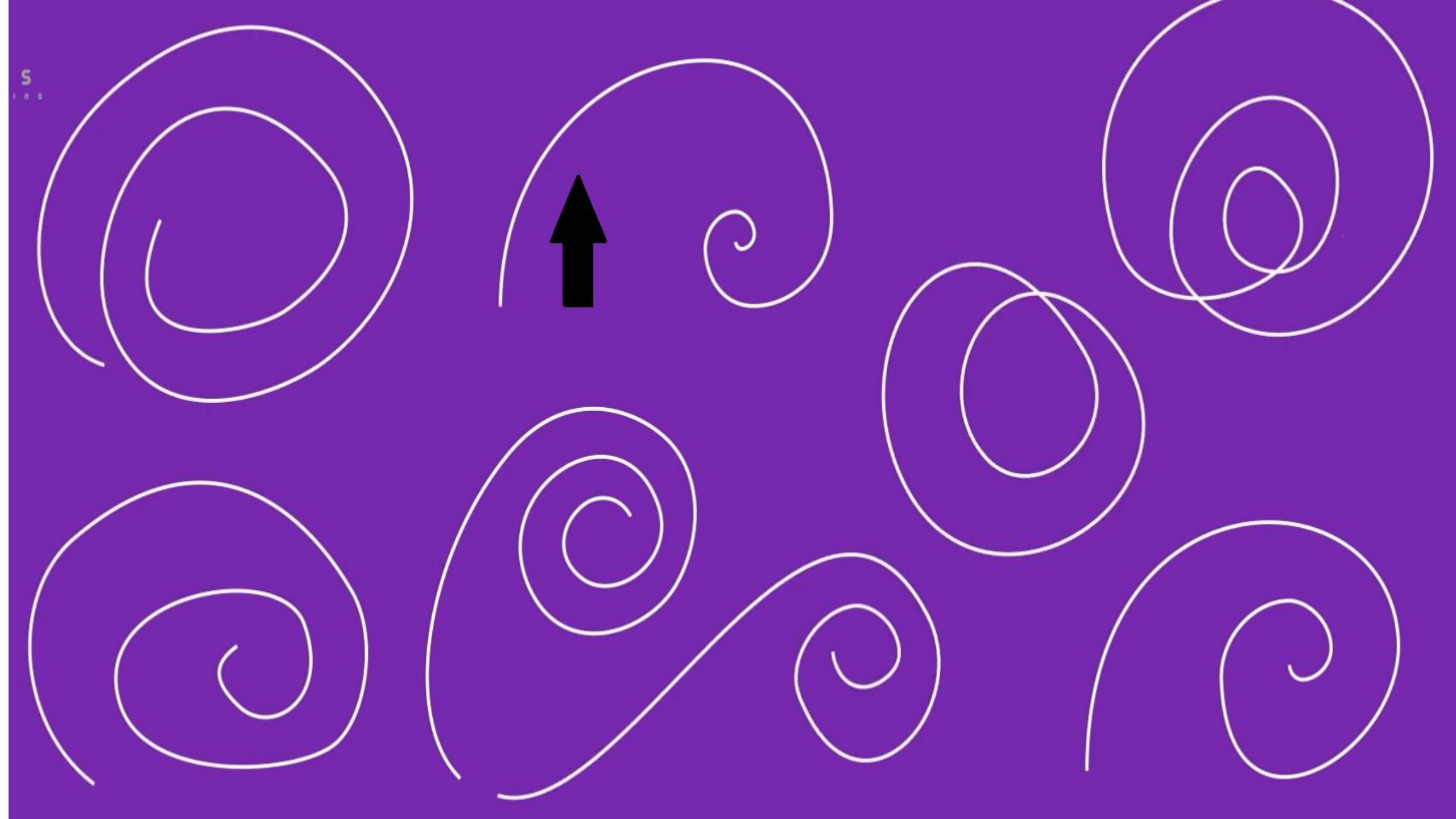



φ



The golden spiral



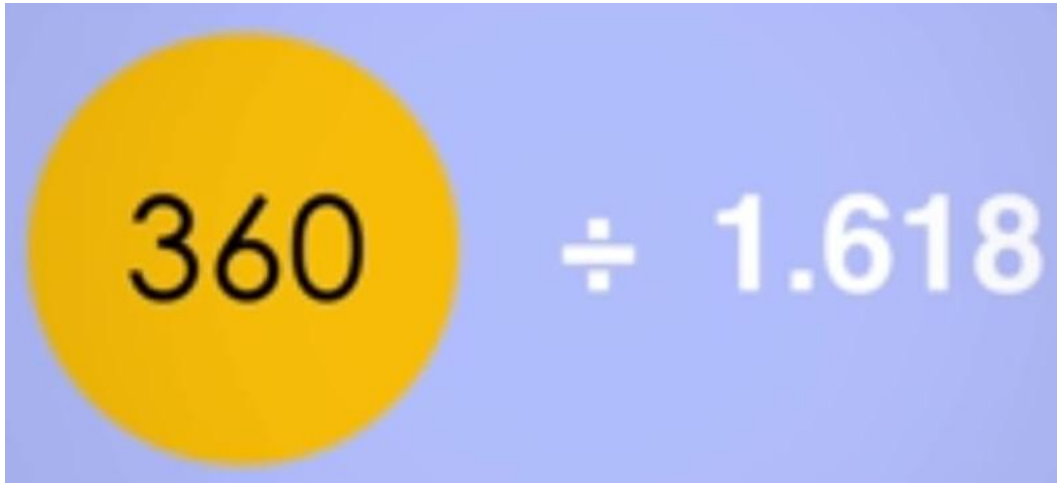


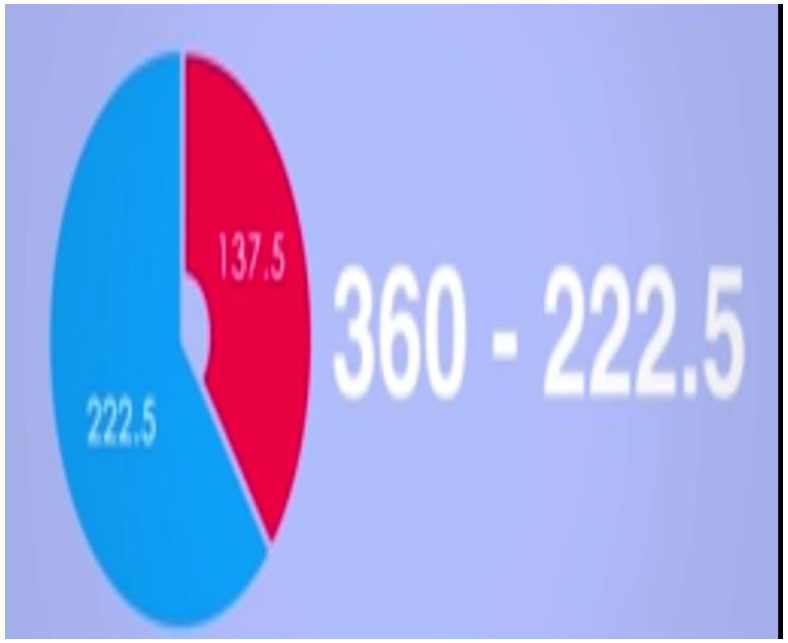
الزاوية الذهبية
The Golden angle

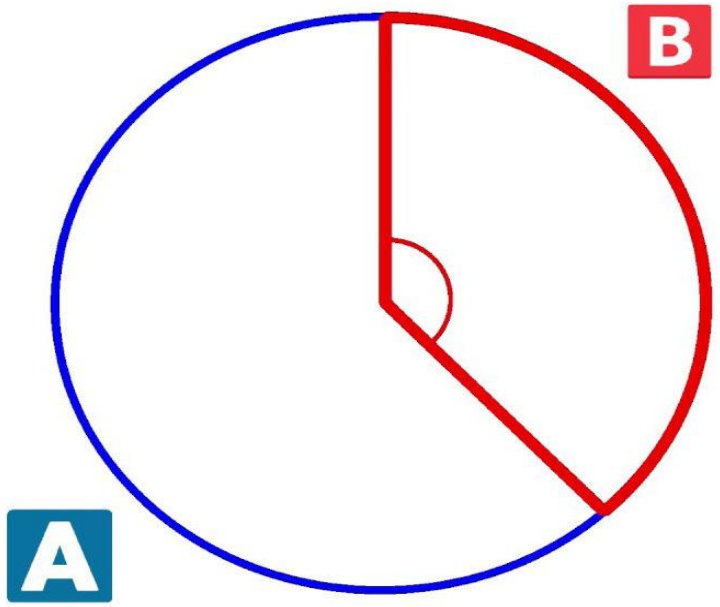
$$137.5^\circ$$

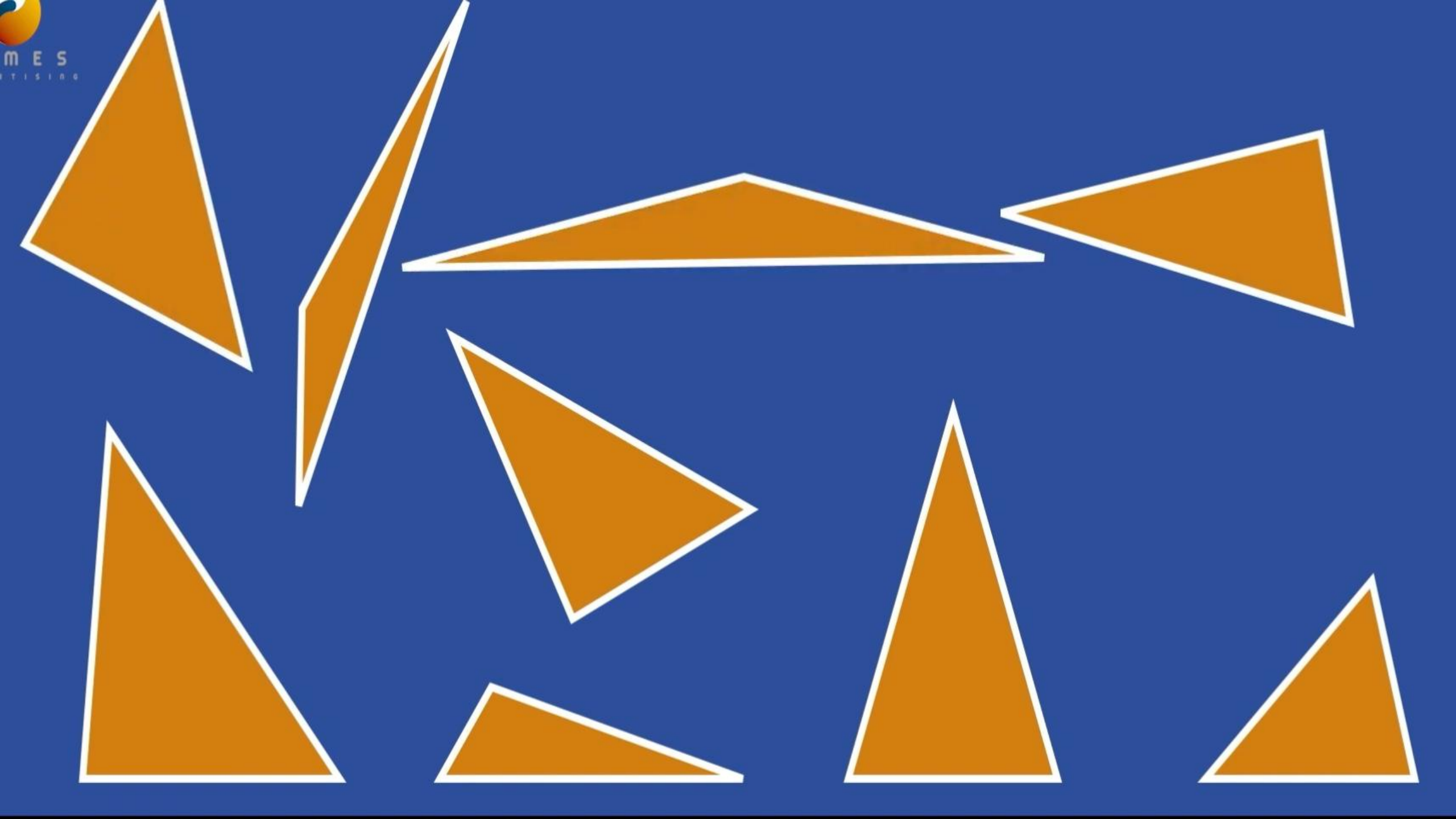
$$\frac{360}{1.61803398875} = 137.5^\circ$$

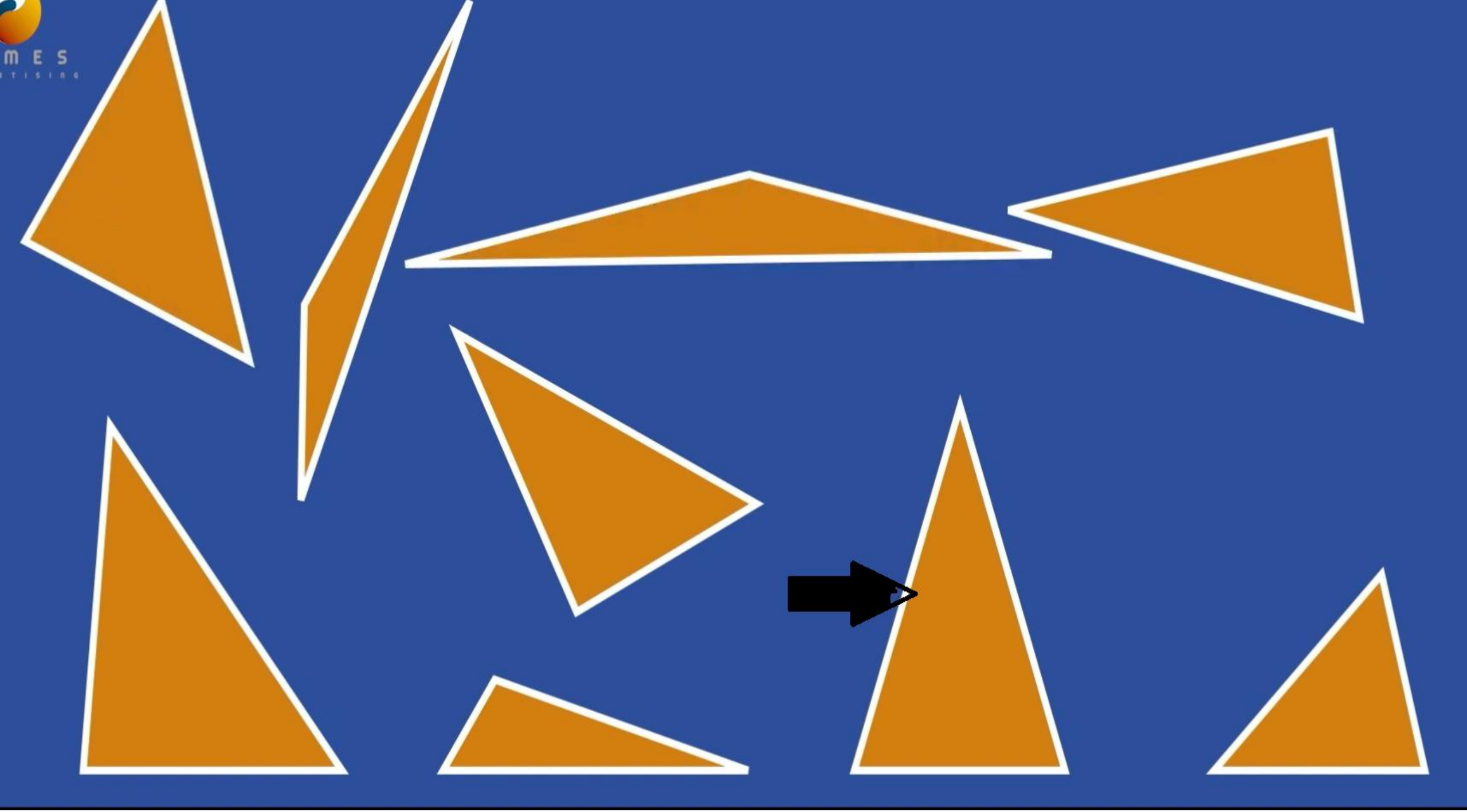
Golden angle=137.5



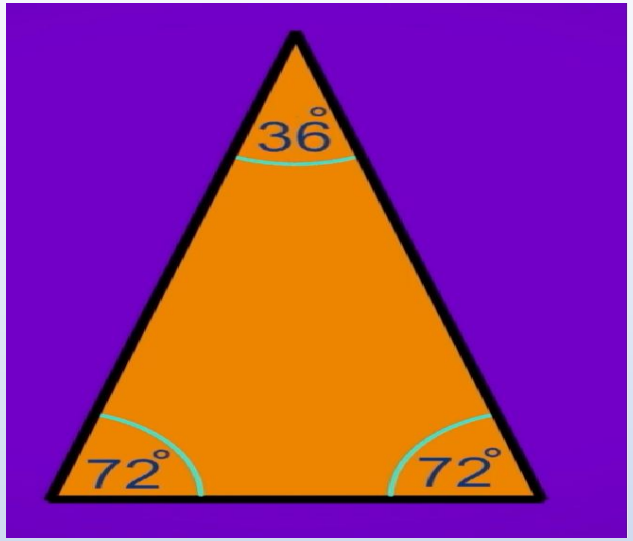


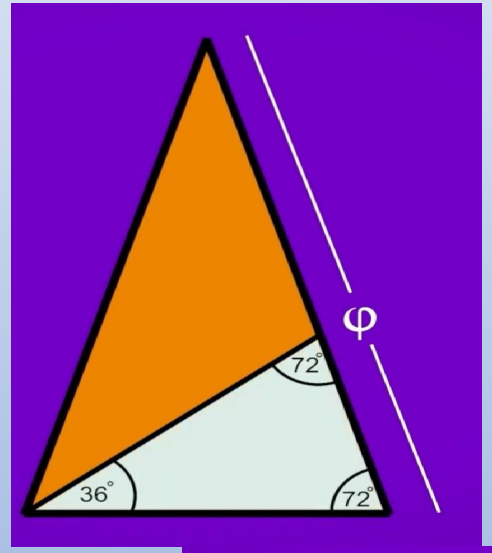


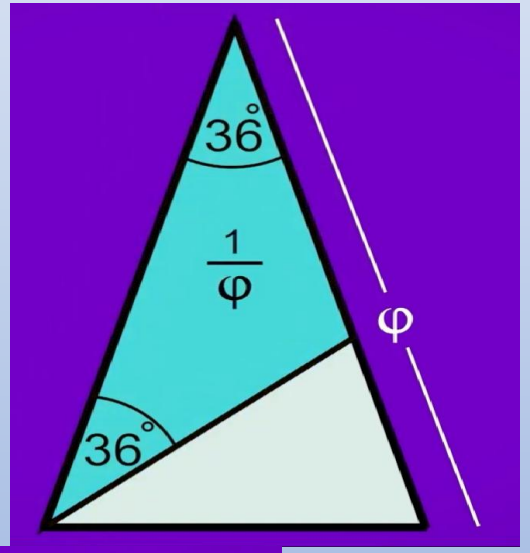


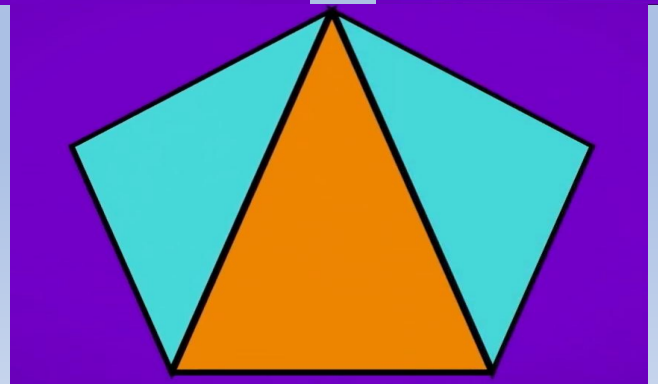


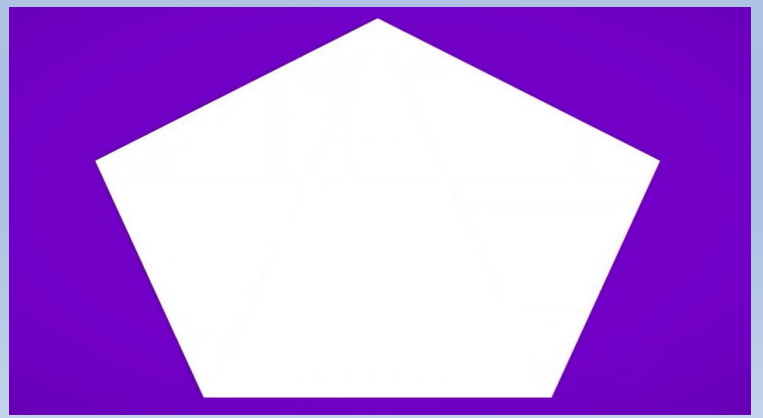
Golden Triangle



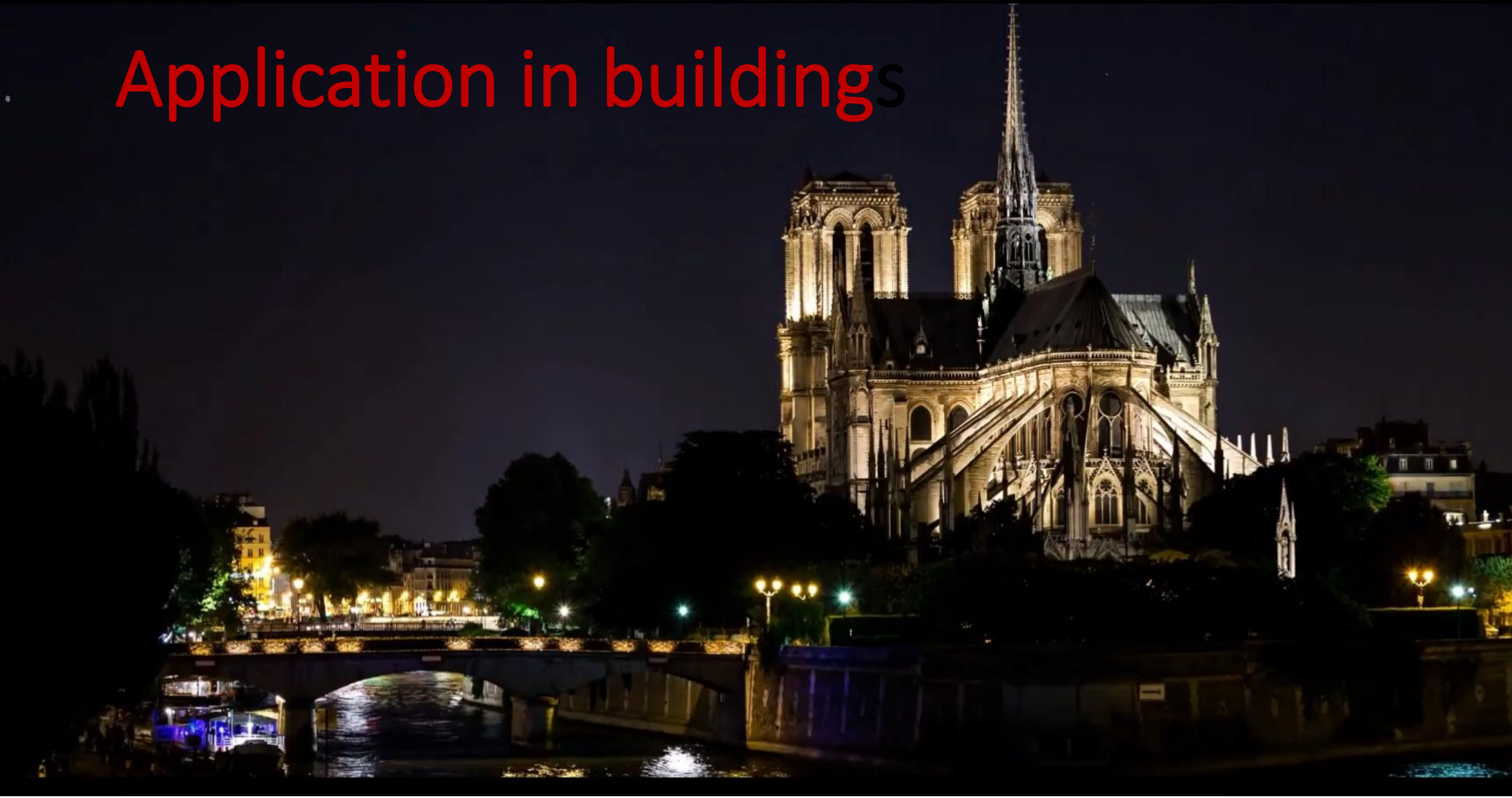


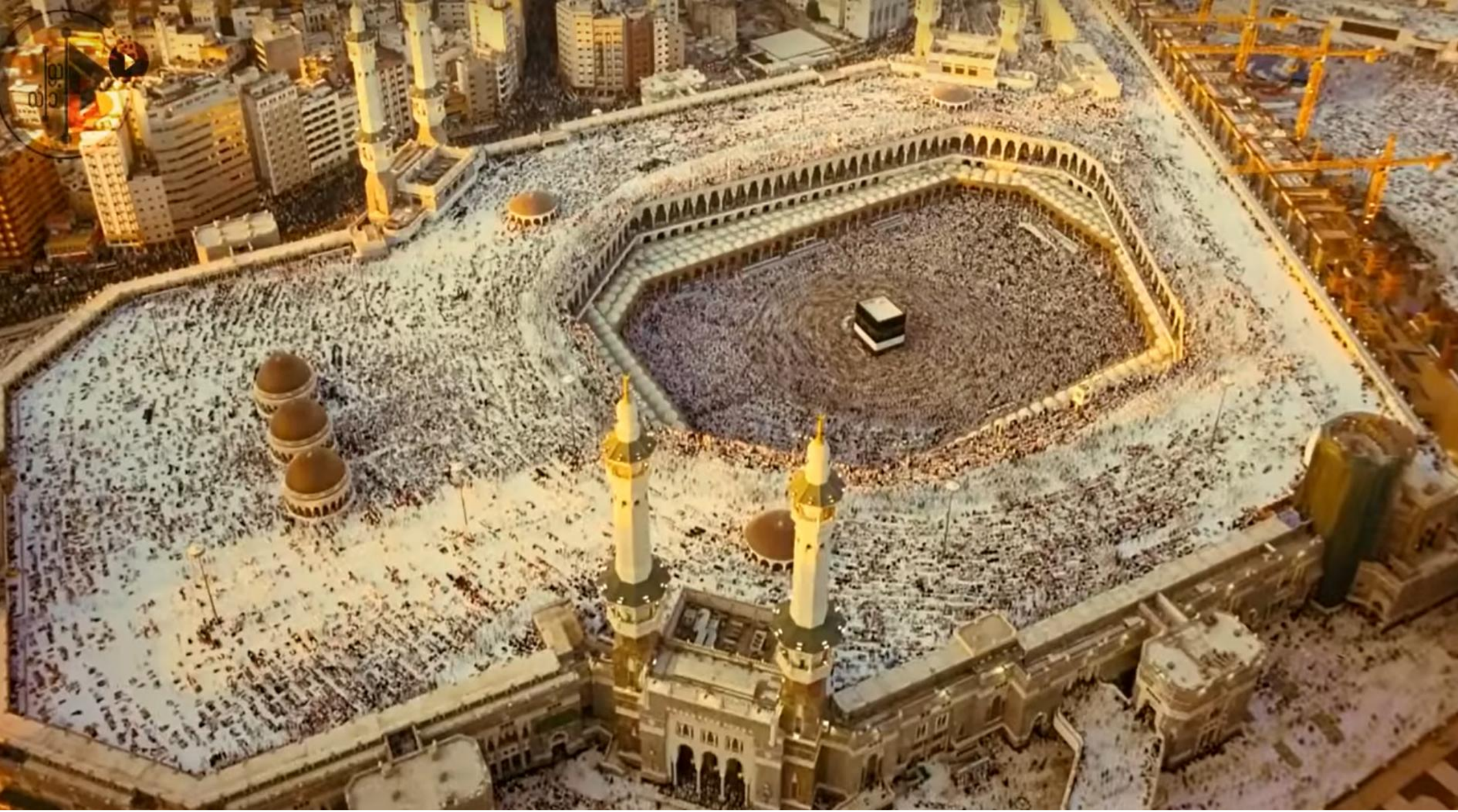


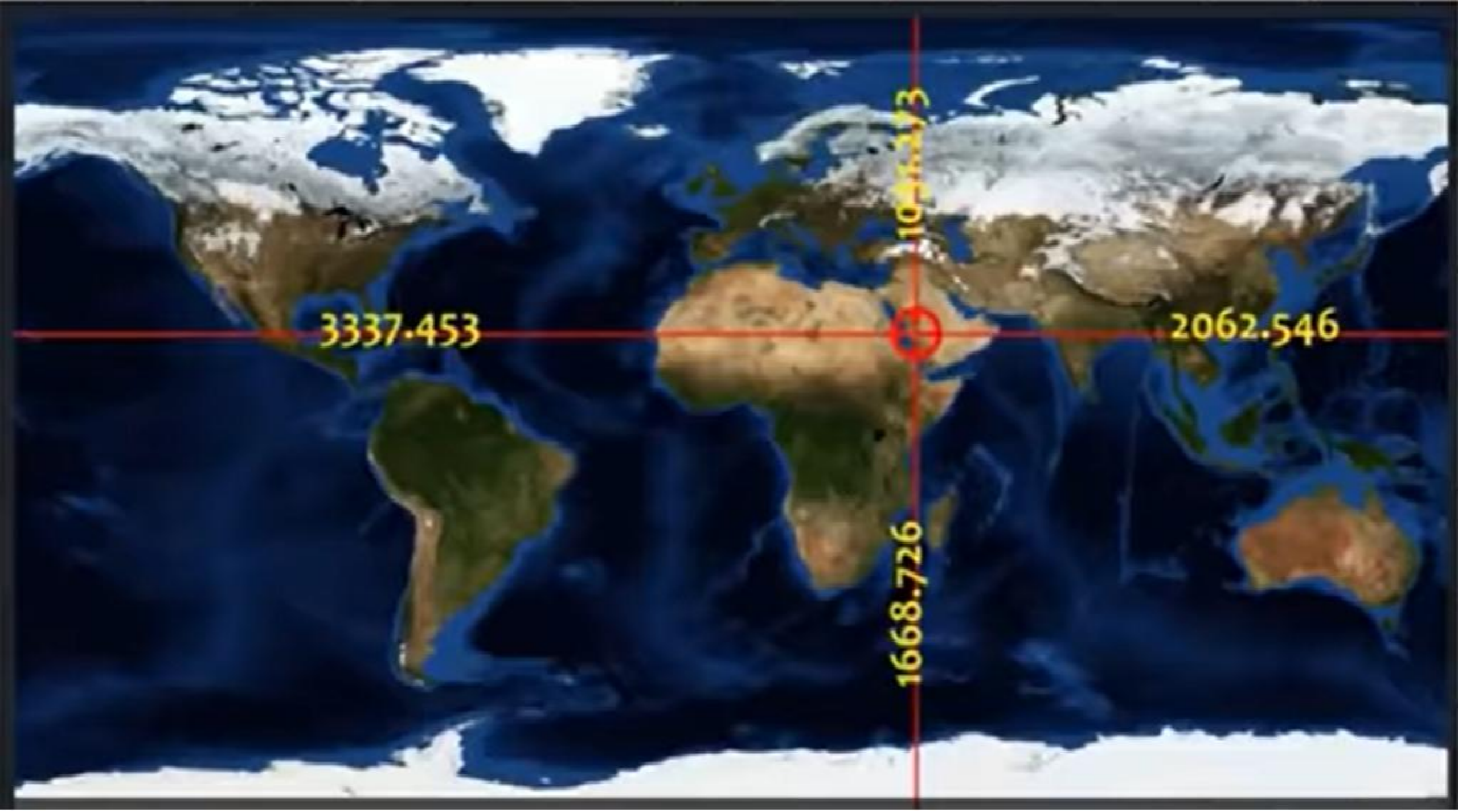


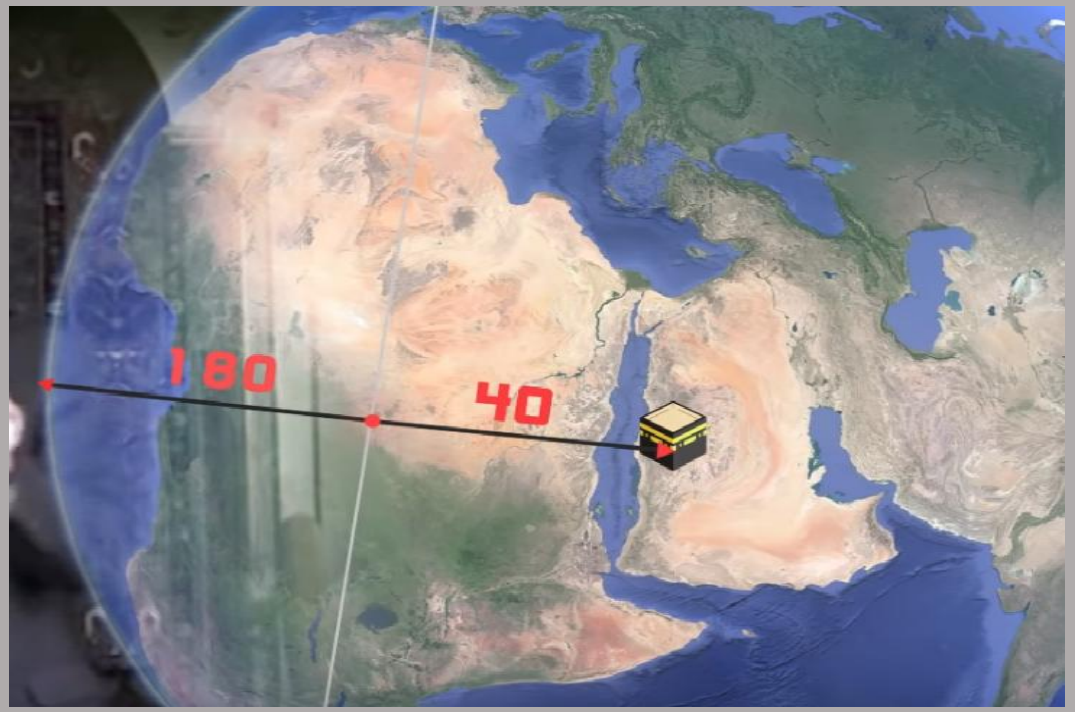


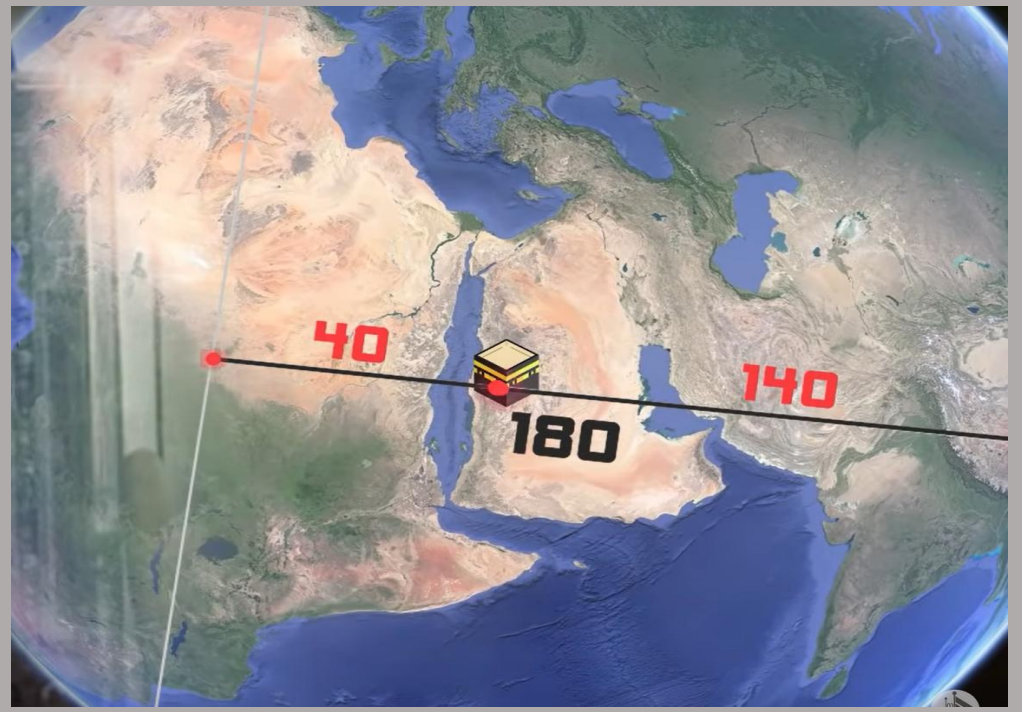
Application in buildings






3337.453
2062.546
1668.726


180
40


40
180
140


113


67

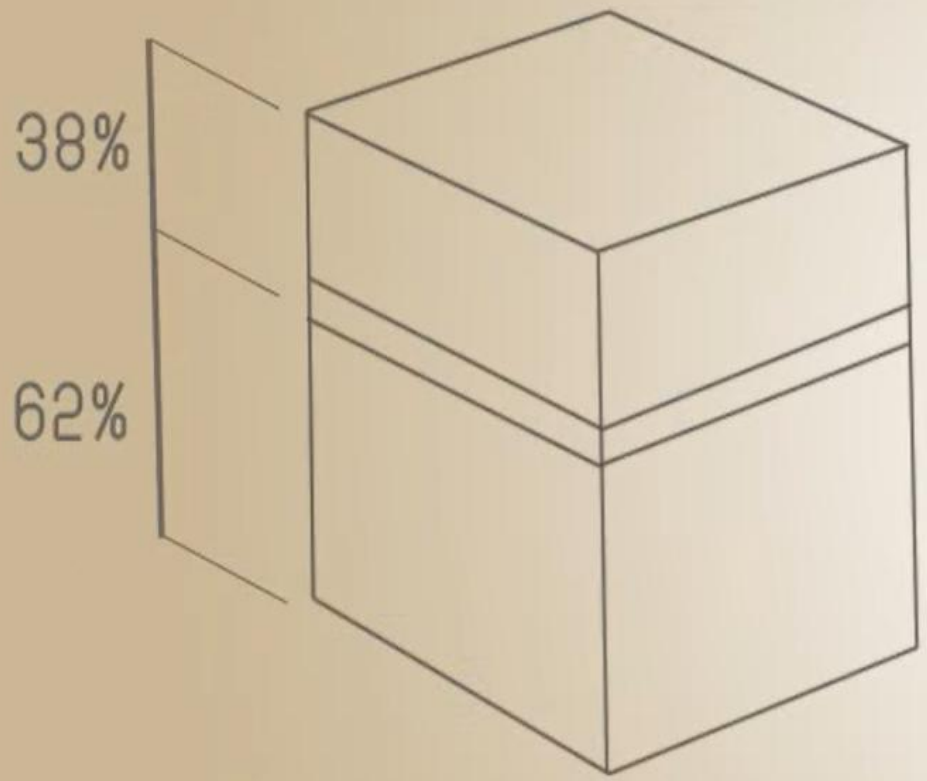
سُورَةُ آلِ عِمْرَانَ

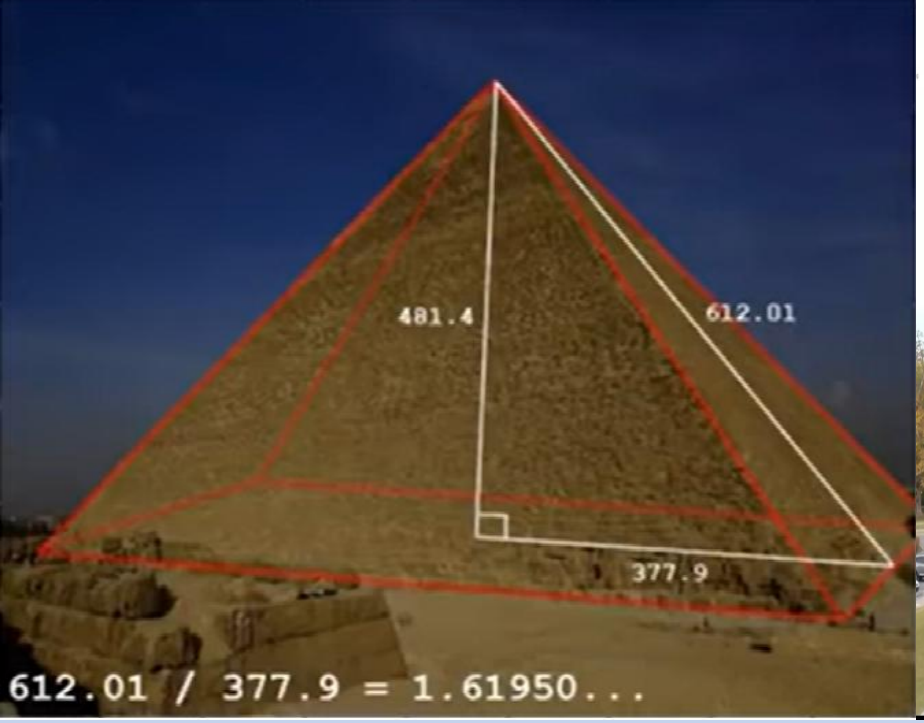
بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

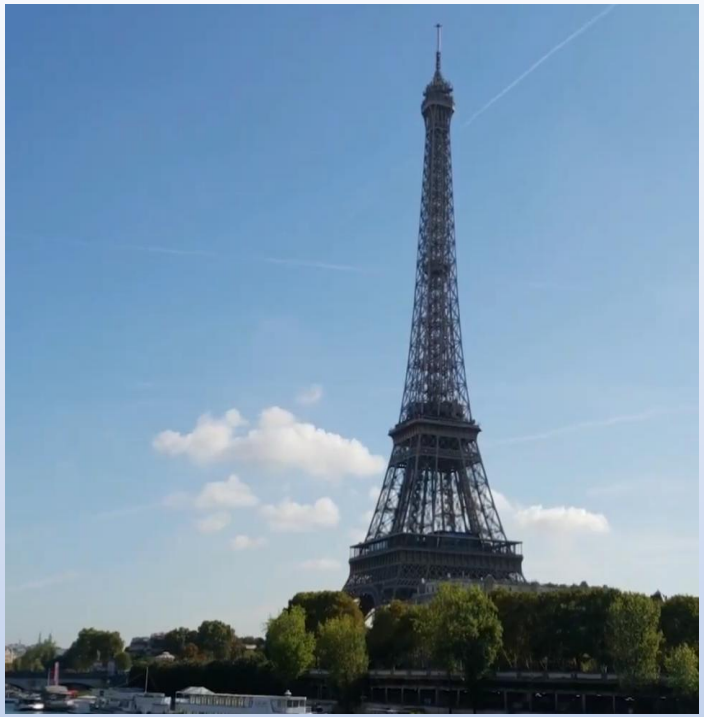
إِنَّ أَوَّلَ بَيْتٍ وُضِعَ لِلنَّاسِ لَلَّذِي بِبَكَّةَ مُبَارَكًا وَهُدًى
لِّلْعَالَمِينَ ﴿٩٦﴾

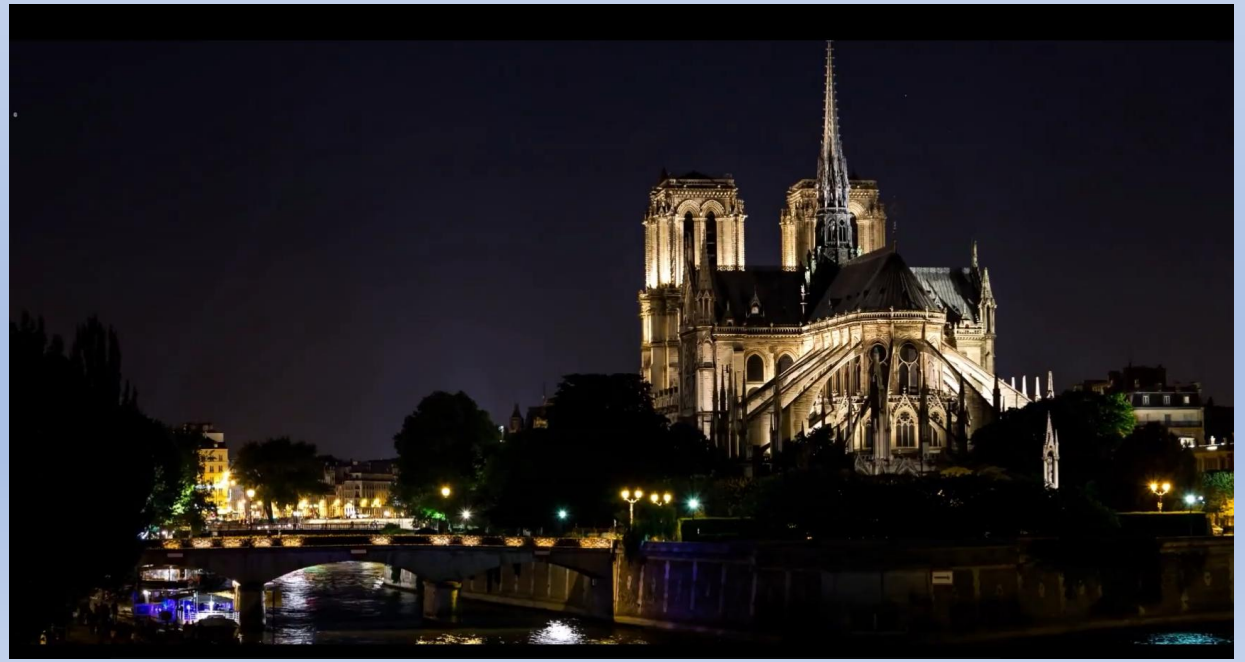
$$a + b = 47 \qquad b = 18 \qquad a = 29$$

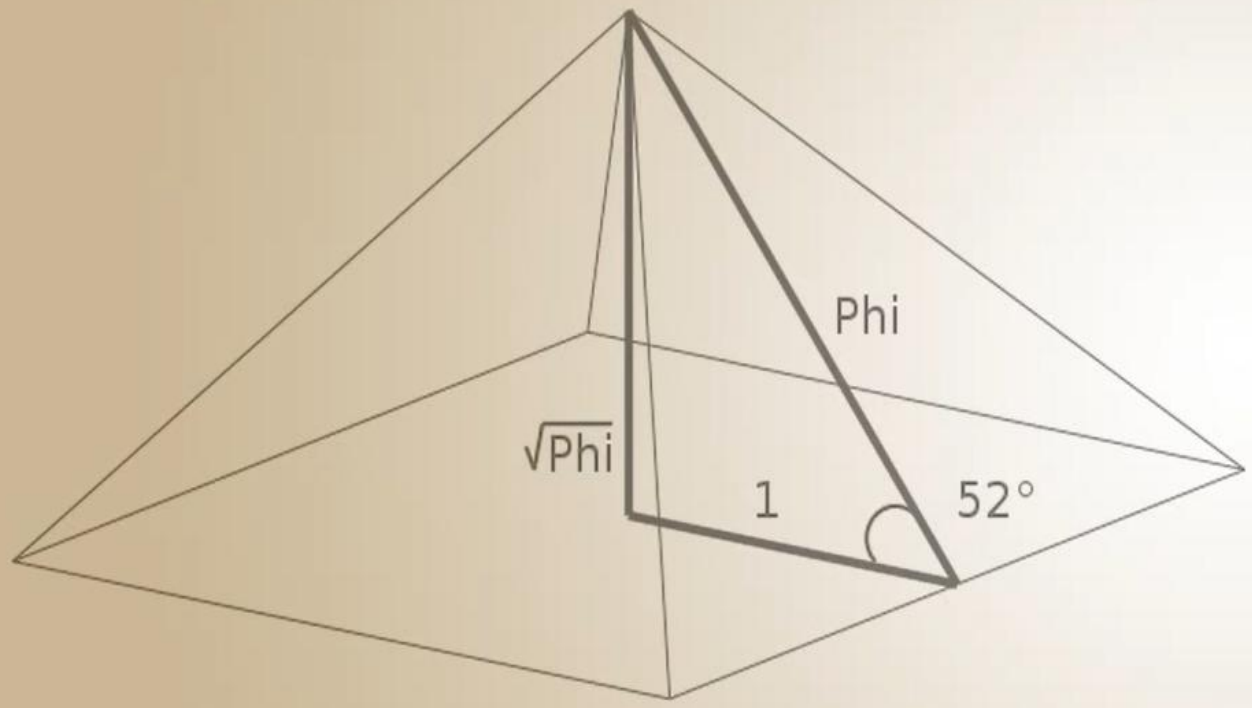
$$\frac{a+b}{a} = \frac{47}{29} = 1.62068\ldots \qquad \frac{a}{b} = \frac{29}{18} = 1.611\ldots$$

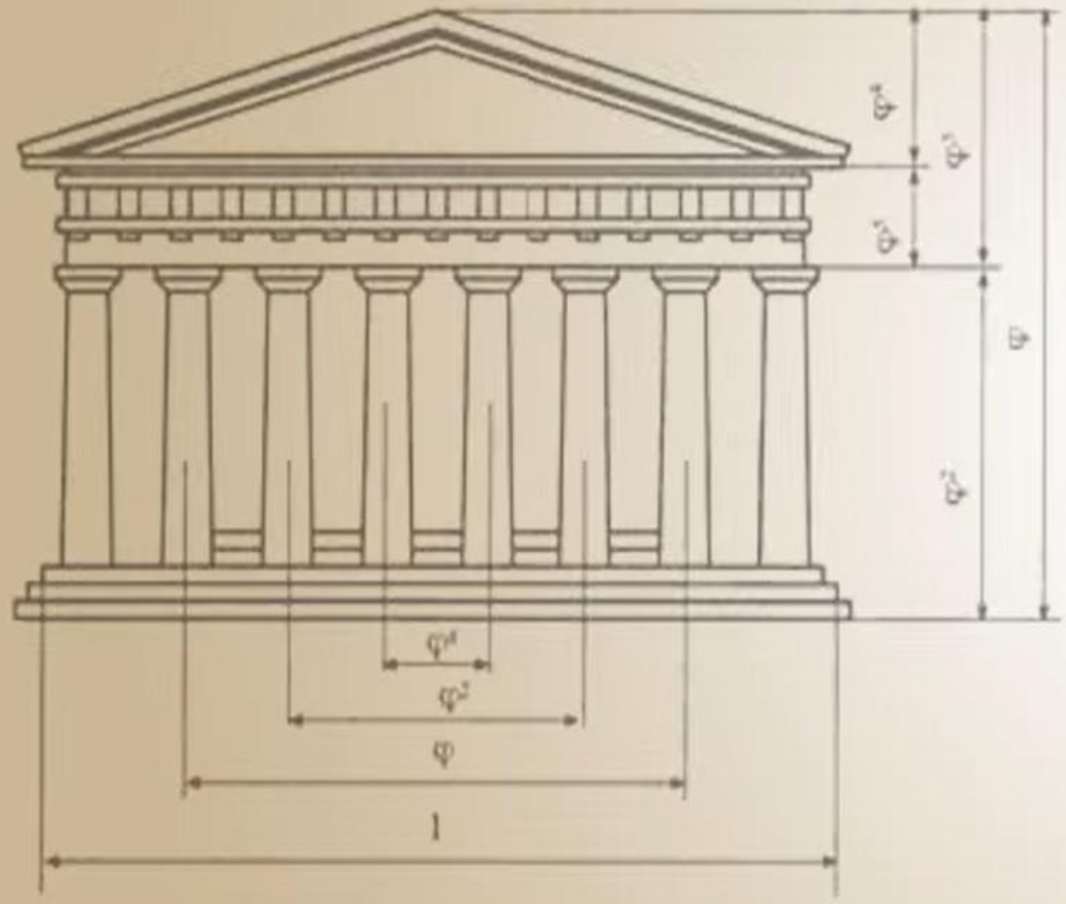

38%
62%

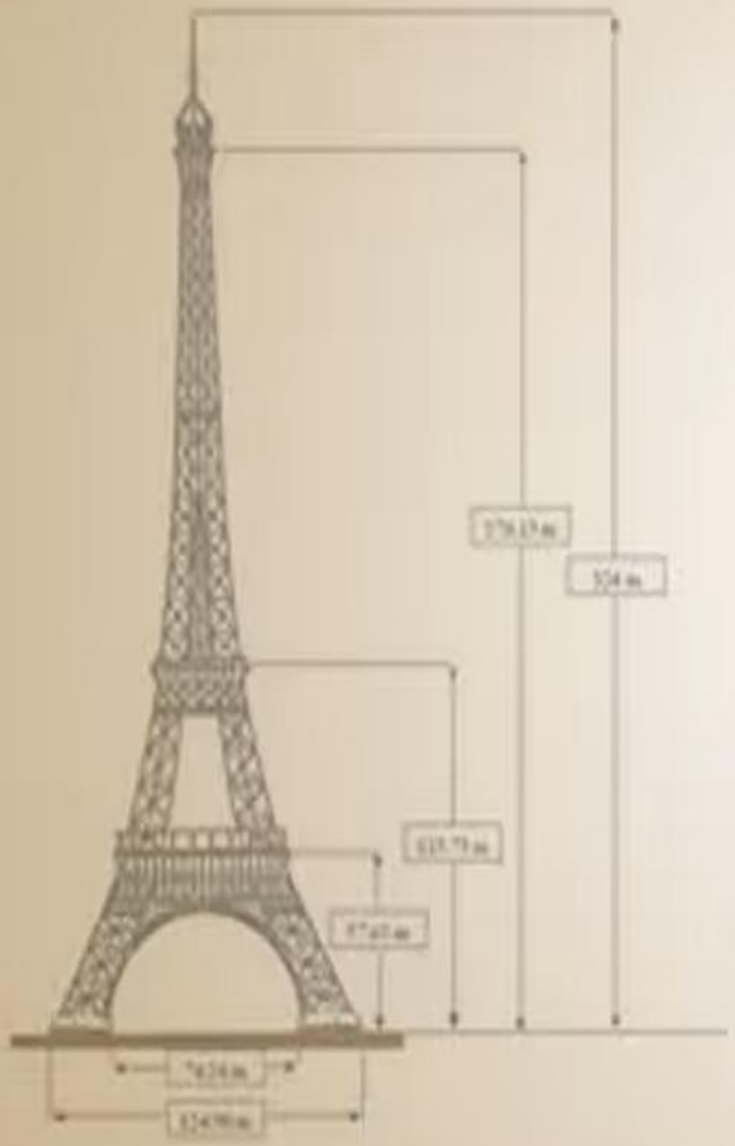

481.4
612.01
377.9
612.01 / 377.9 = 1.61950...



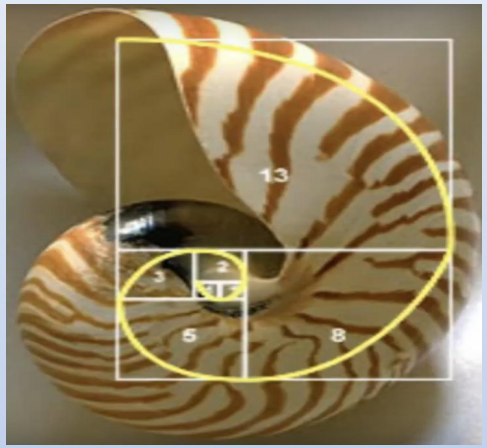


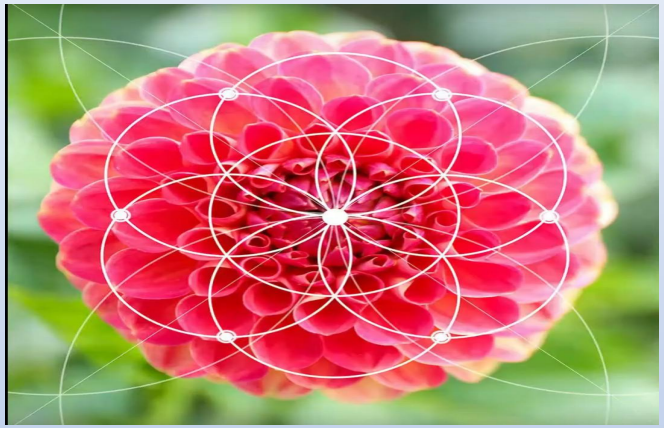

Phi
√Phi
1
52°

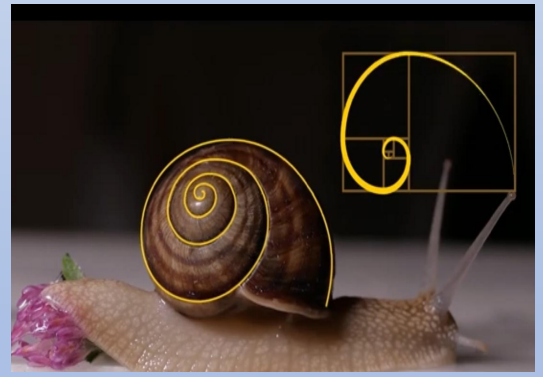

φ''
φ'
φ
l

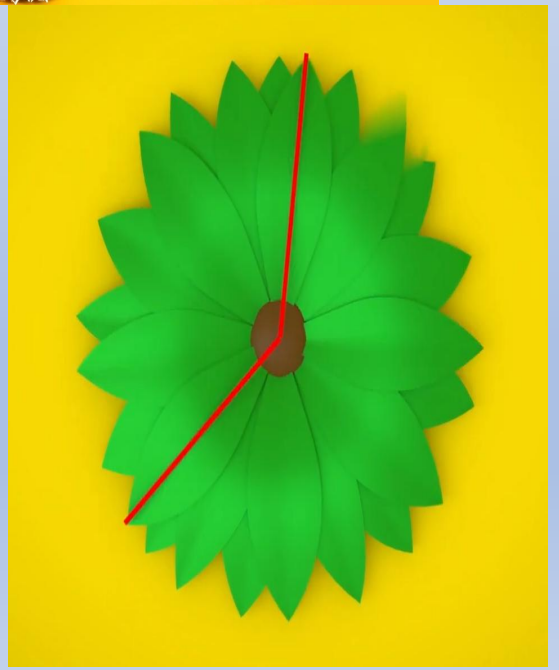


Application in Nature

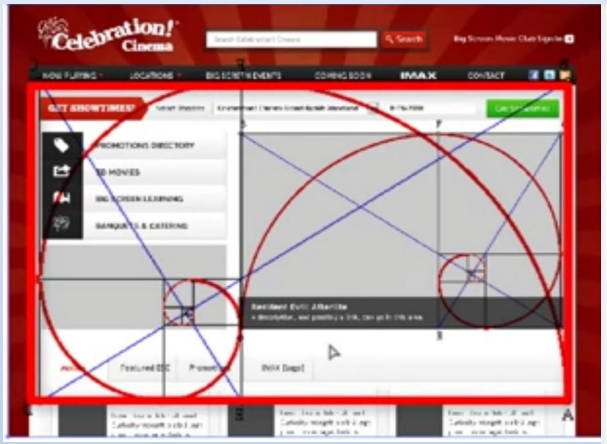


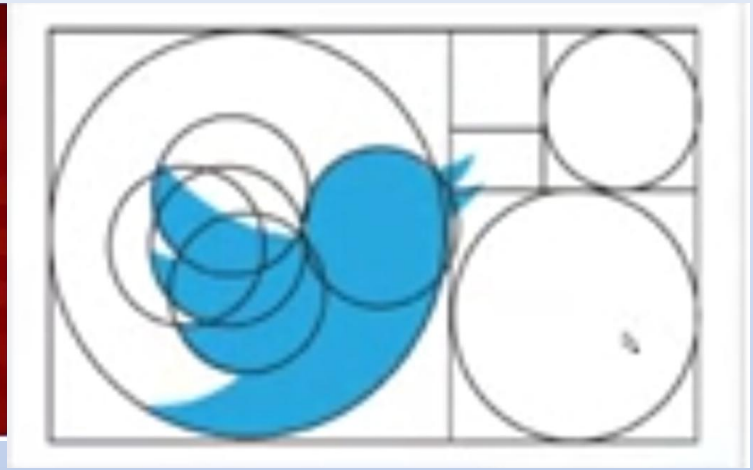


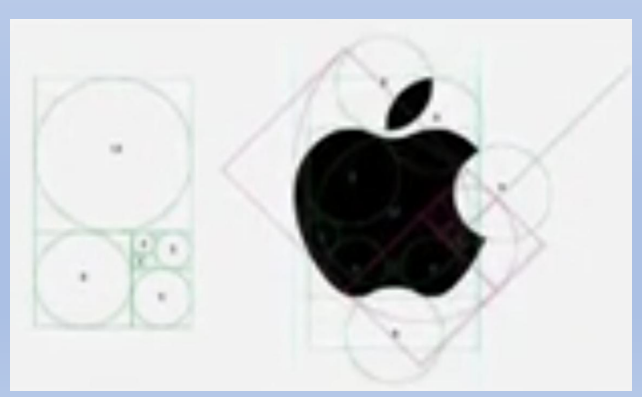


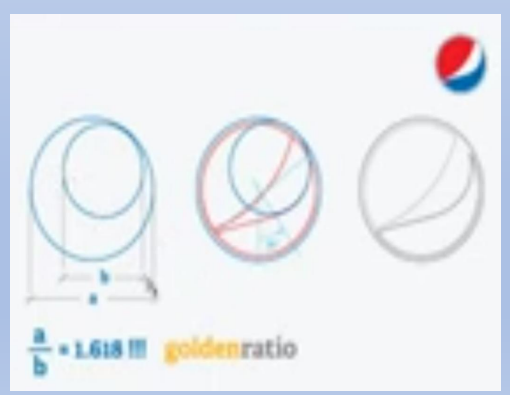


Application in Graghic Designer





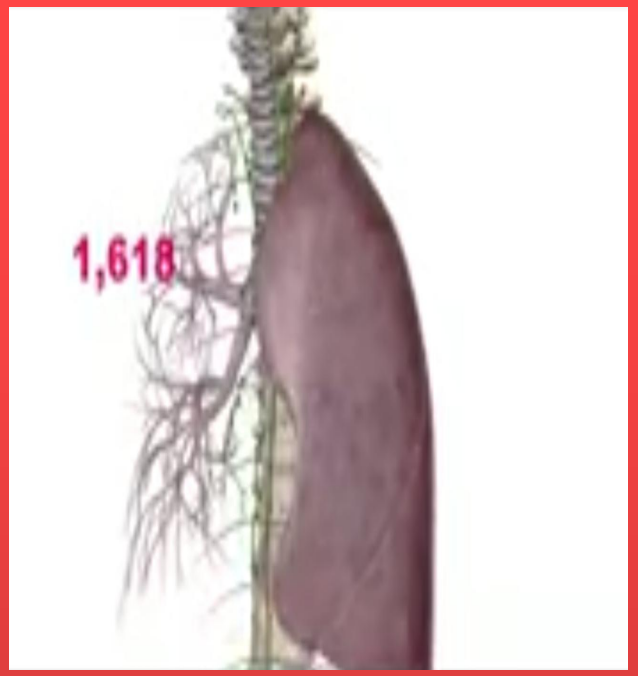


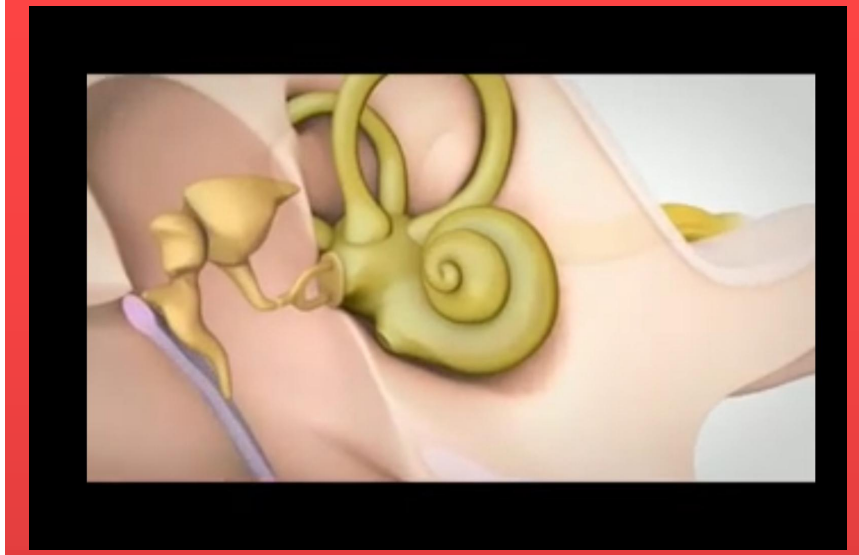


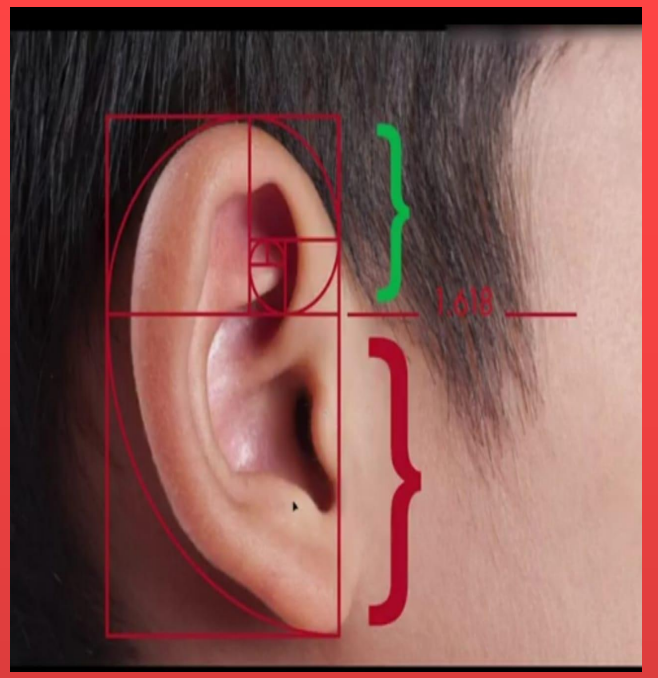
Application in Medecine

Scientist and surgeon Dr.Stephen Marquardt

Study the beauty of Human anatony
For 25 Years He Gives the secret is golden ratio


1,618

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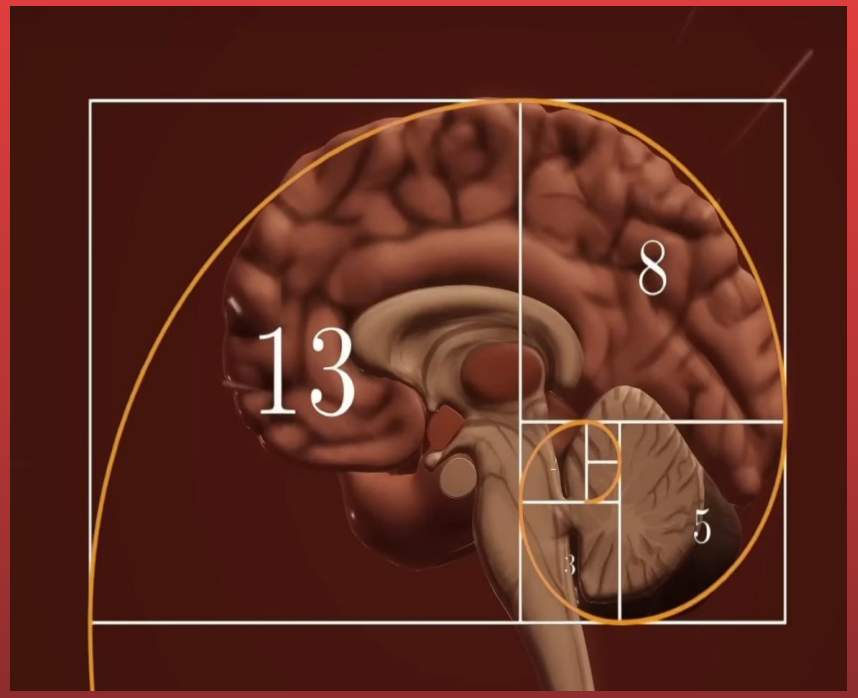
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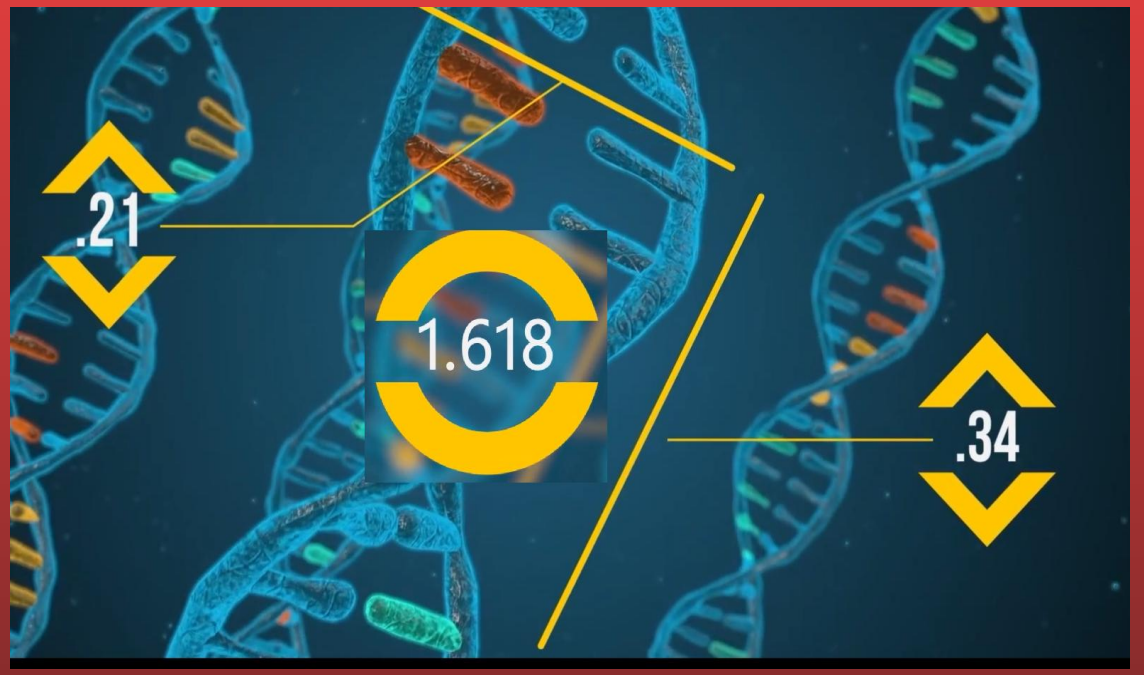
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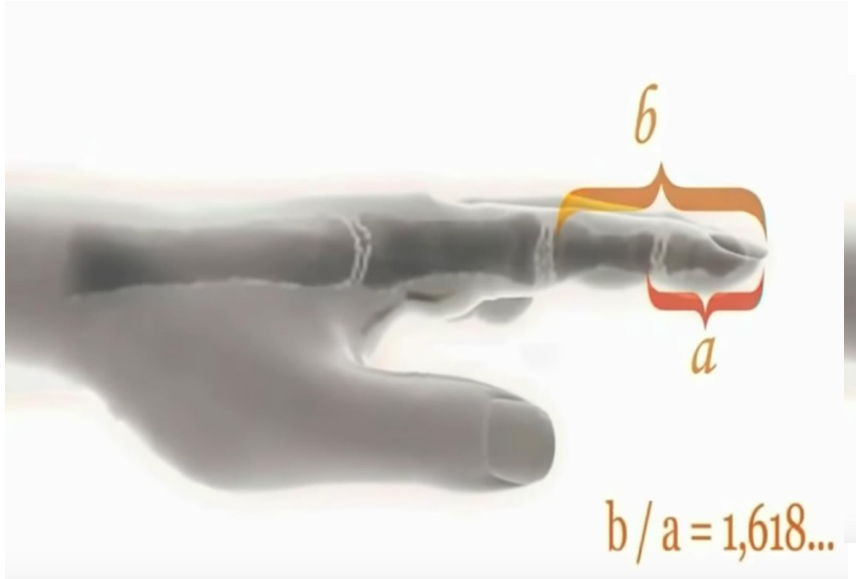
b
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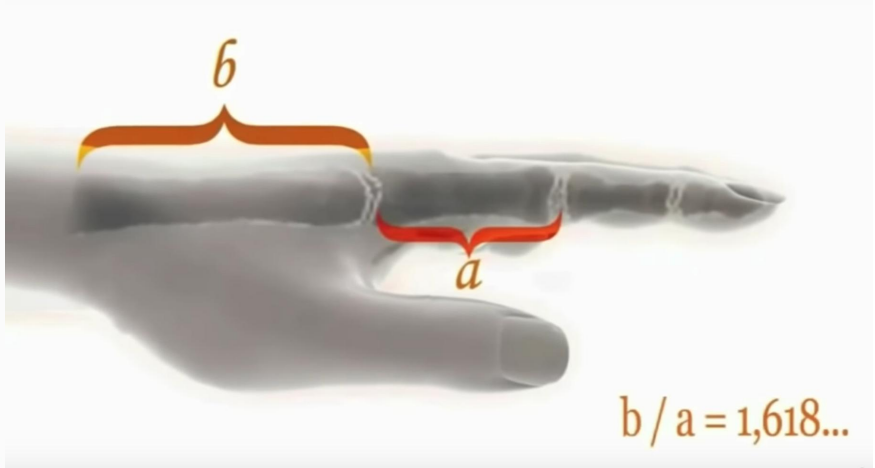
b / a = 1,618...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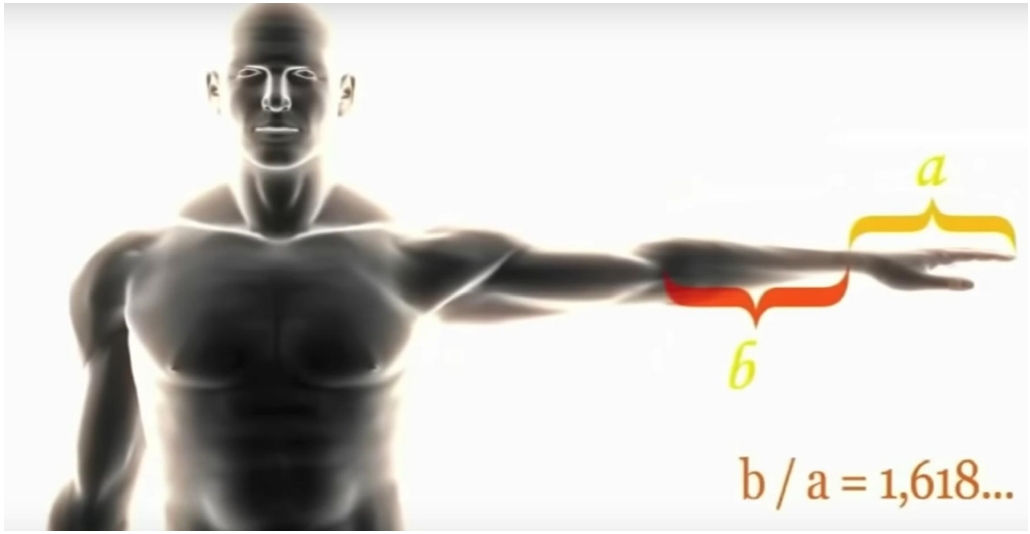
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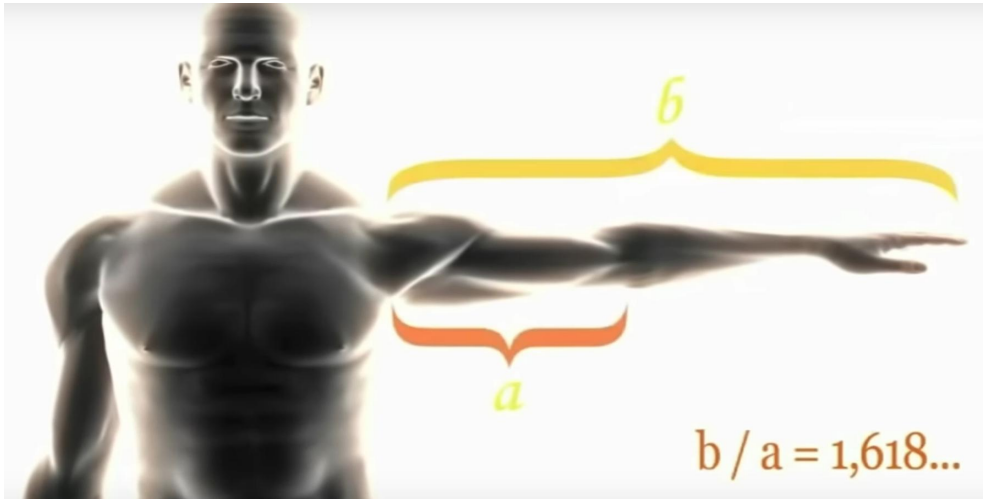
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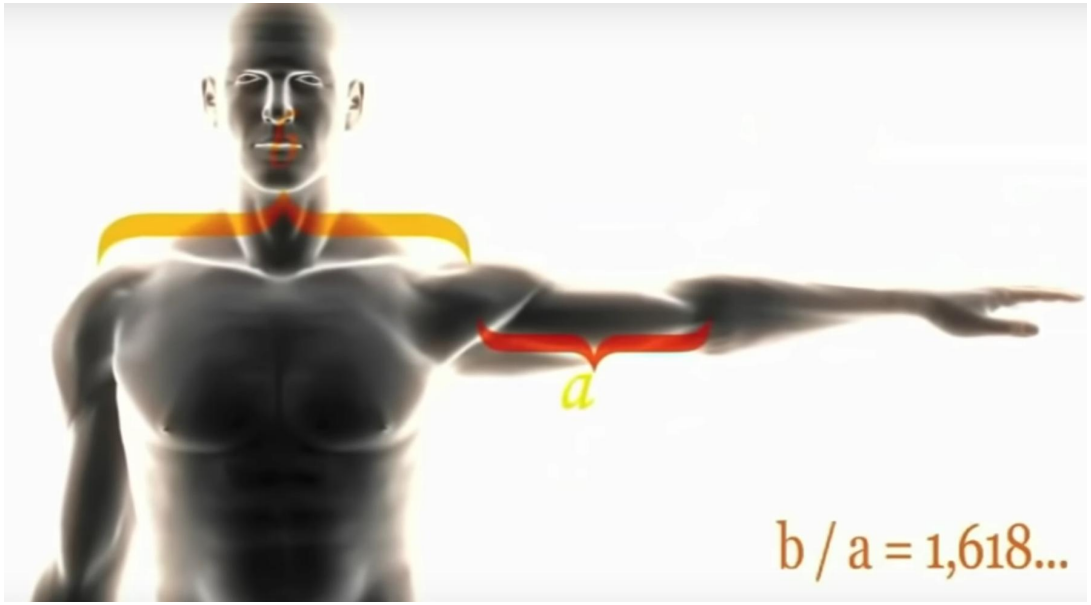
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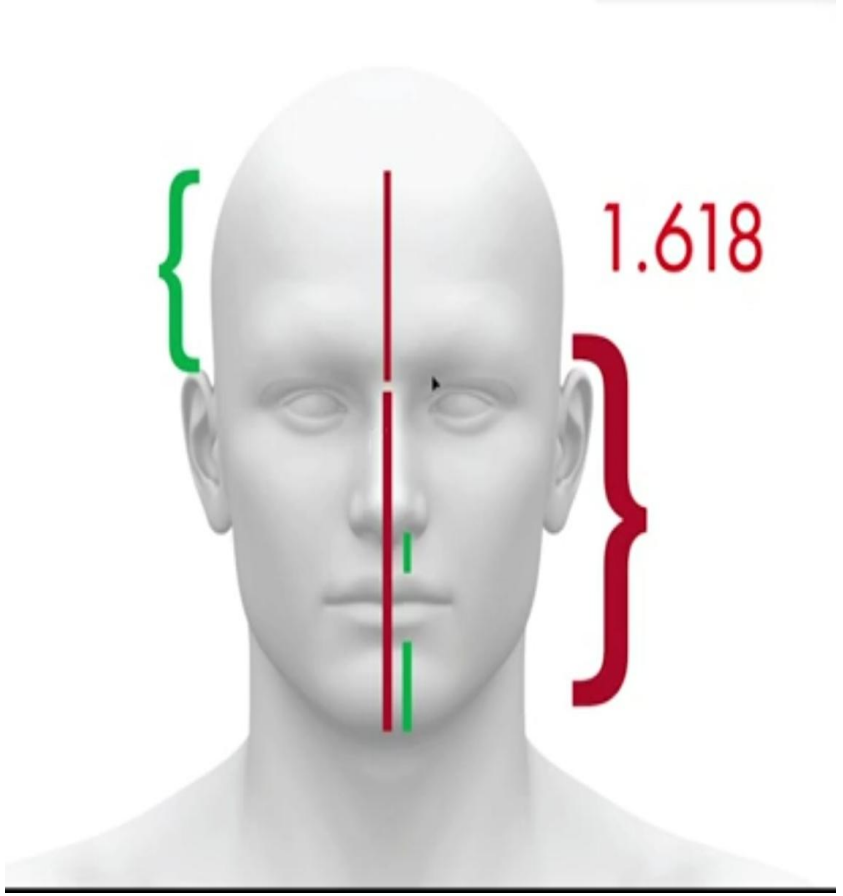
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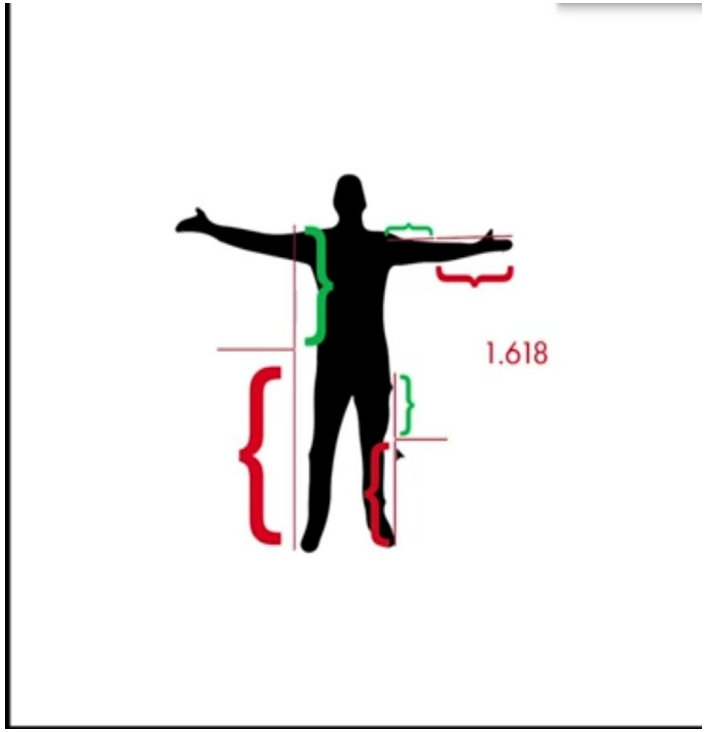
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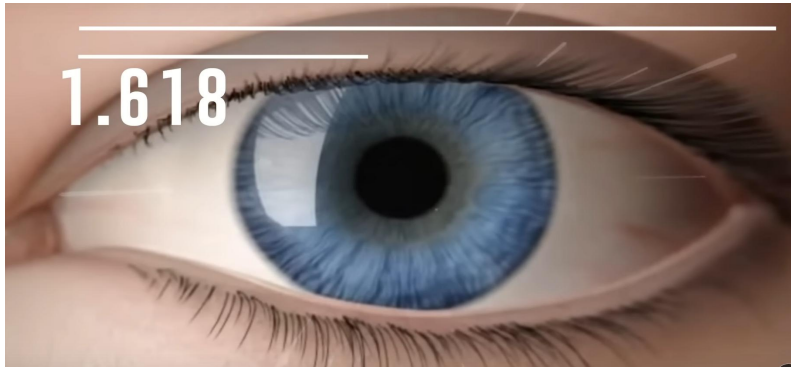
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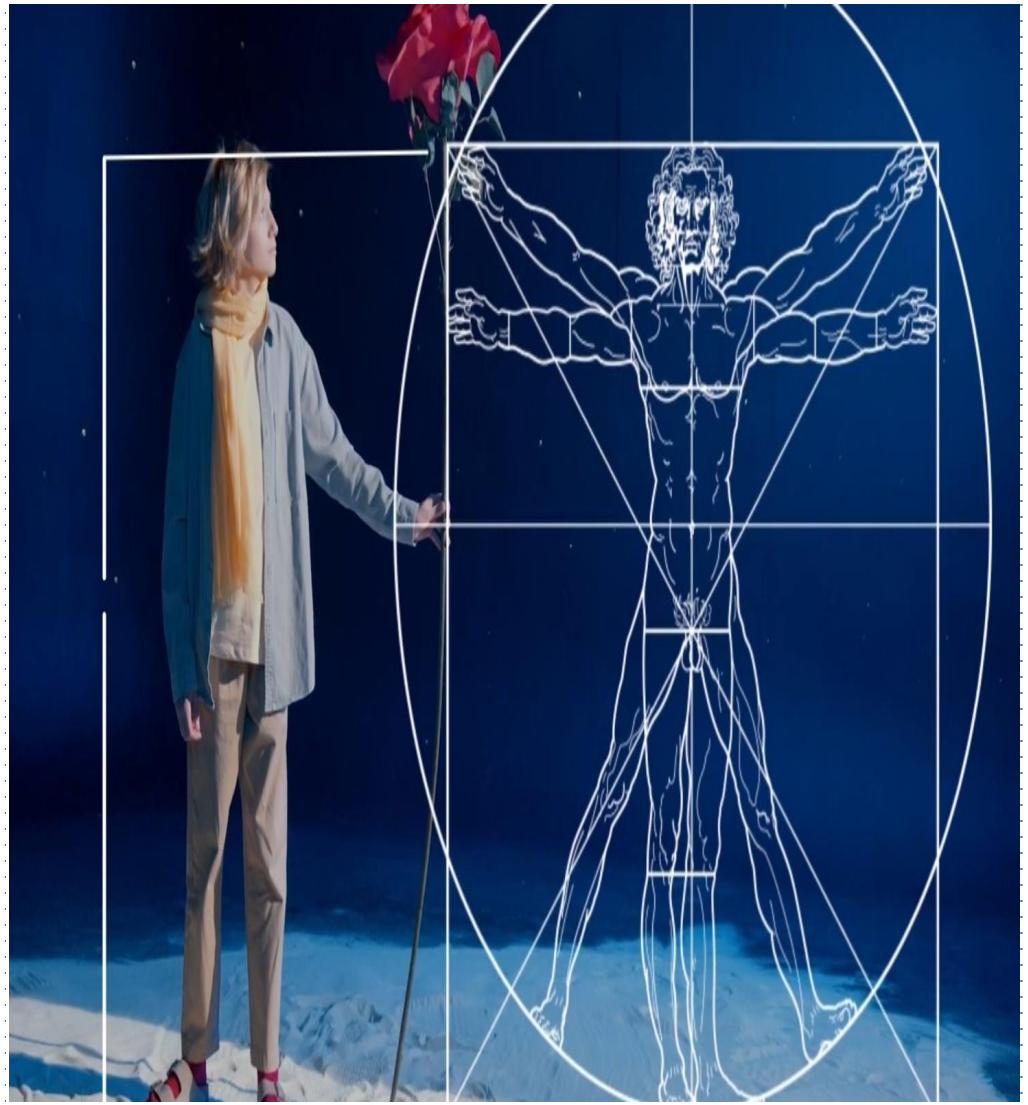
Centre of mass

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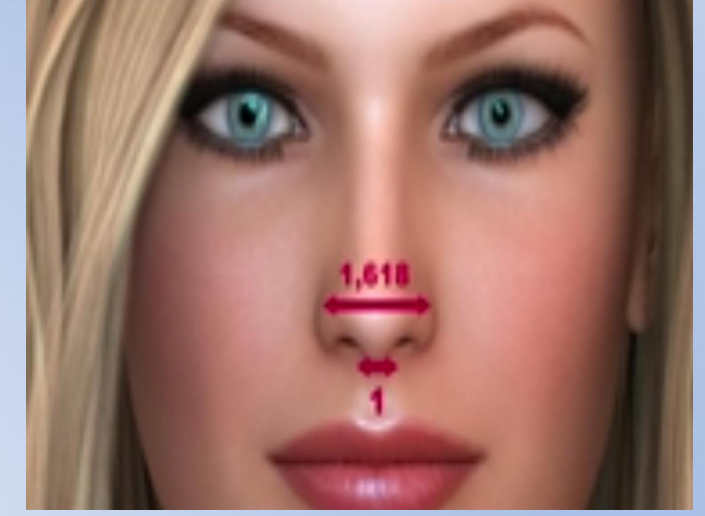
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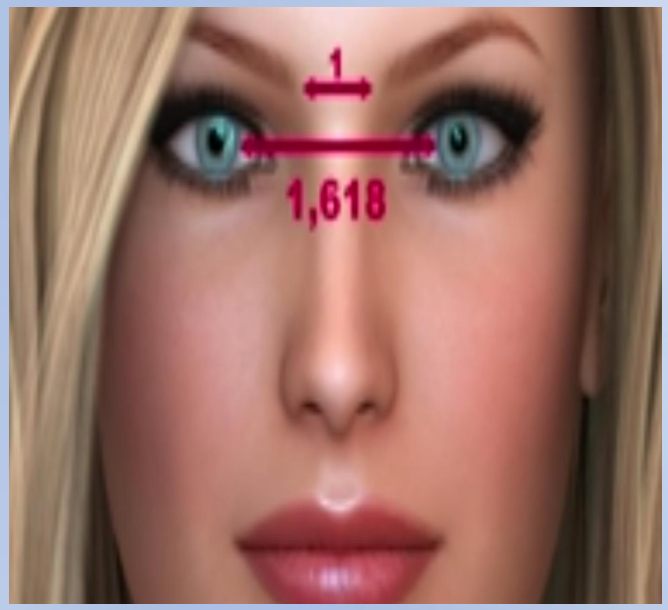
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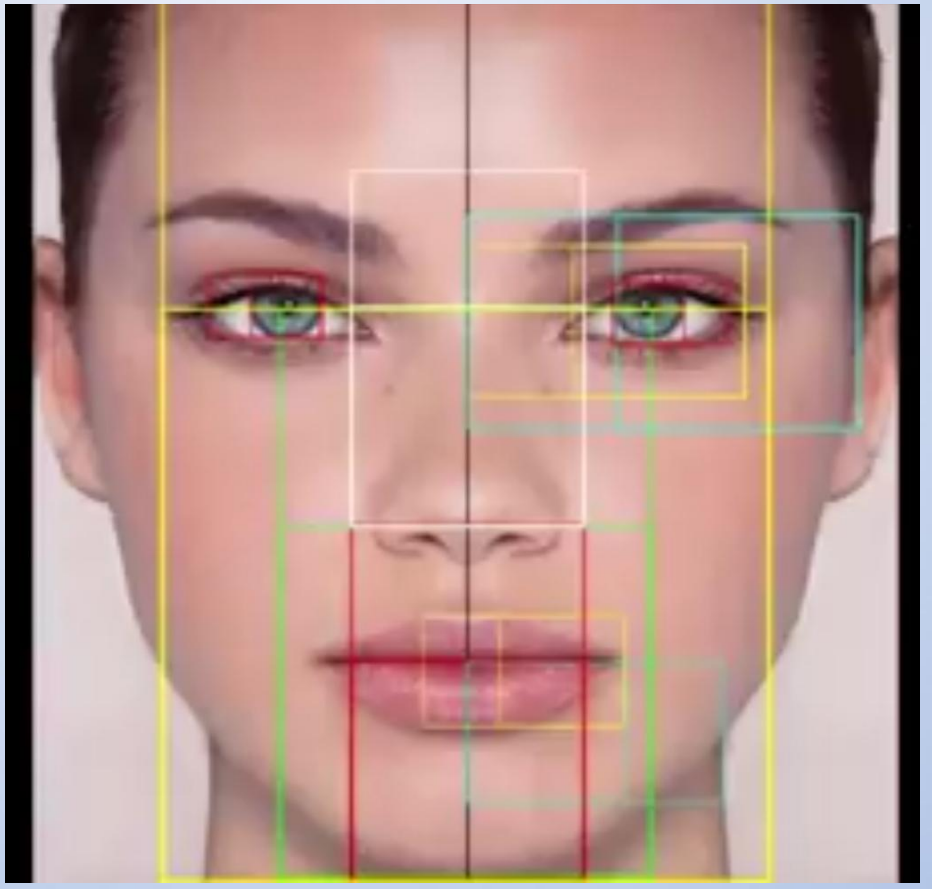
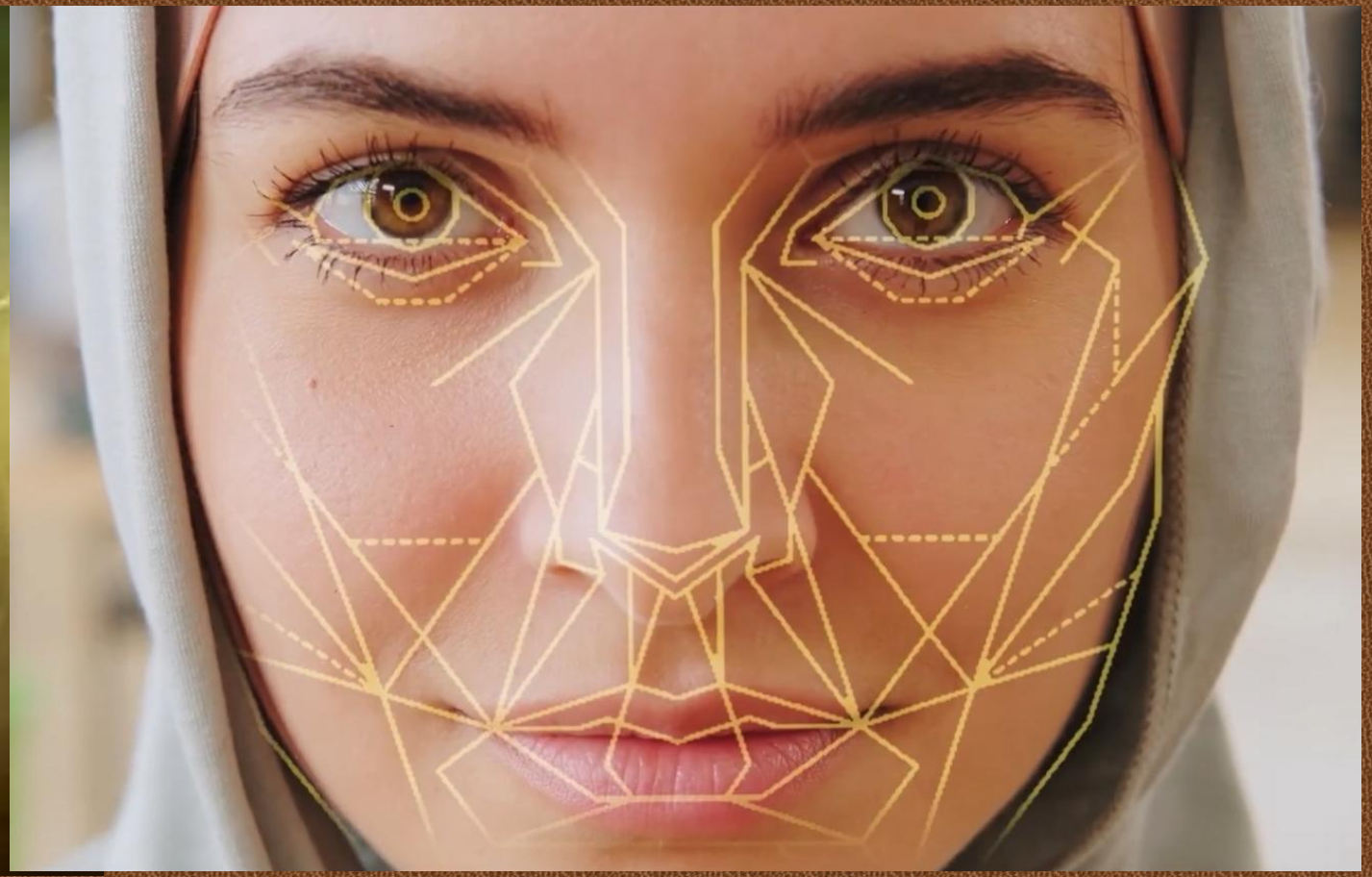


Mask for Beauty Face for male and female



Application in dentistry


0.618
1.000
1.618

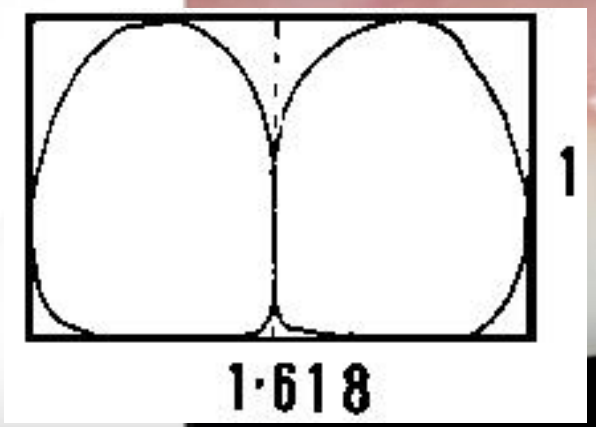

The "Golden Ratio"

Dental Proportion Guidelines

1. Golden proportion (Lombardi) in 1973 and developed by (Levin) in 1978
2. Golden percentage by (Snow) in 1999
3. Recurring esthetic dental proportions “RED” (Ward)

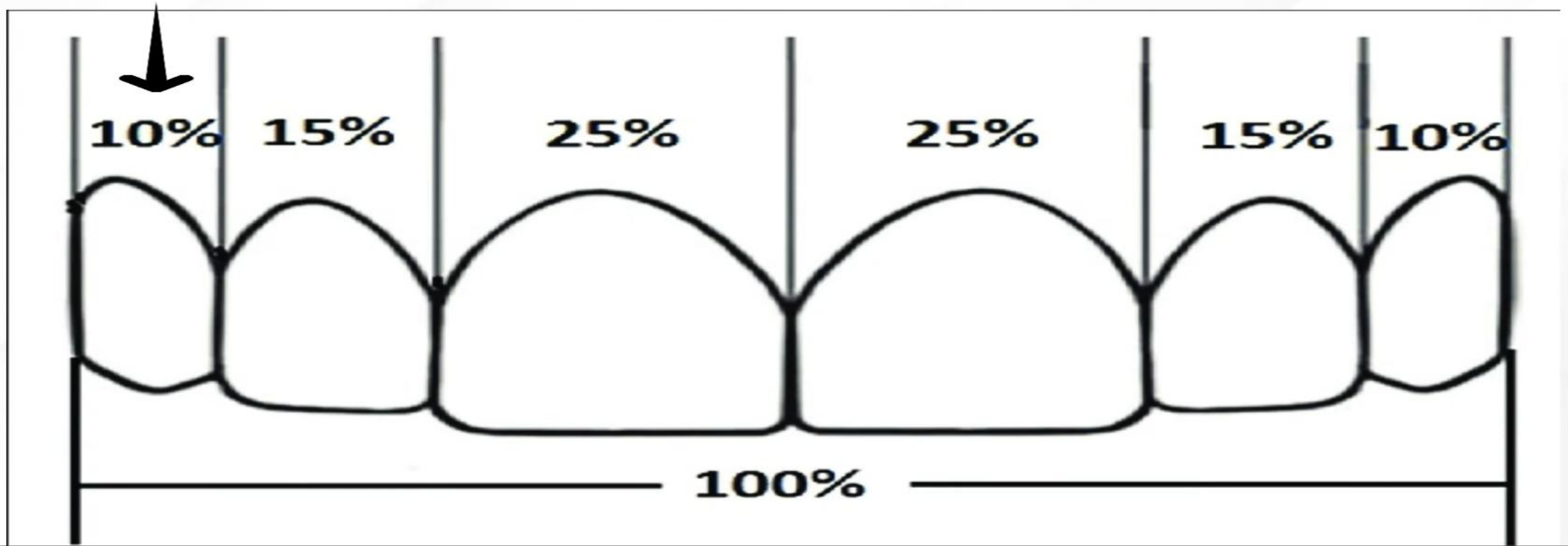
1. PRINCIPLE OF GOLDEN RATIO \ GOLDEN PROPORTION, LOMBARDI \

When viewed from the facial, the width of each anterior tooth is 60% of the width of the adjacent tooth (mathematical ratio being 1.6:1:0.6). meaning that the area shown from the canine is 60% of the area shown of the adjacent lateral incisor and the area shown from the lateral incisor is 60% of that of the adjacent central



2. GOLDEN PERCENTAGE BY (SNOW) IN 1999:

It's the proportion of the width of a single tooth to the width of the six upper frontal teeth. Where the canine would make 10% of the width of the six upper frontal teeth, the lateral 15% and the central 25%



3.RECURRING ESTHETIC DENTAL PROPORTION "RED" (WARD):

When viewed from the facial aspect: As we move posteriorly form midline, the successive width proportion should remain constant. If the perceived width of the lateral incisor divided on that of the central, it gives a constant number. And when you divide the canine width on the lateral width, it gives the same constant number. And so on as you go posterior