

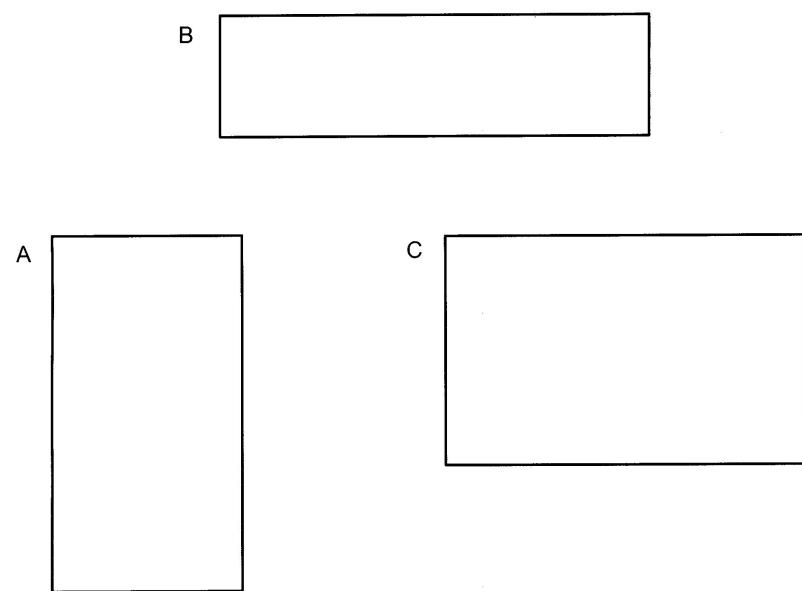
Going for the GOLD

CAMT – 2019

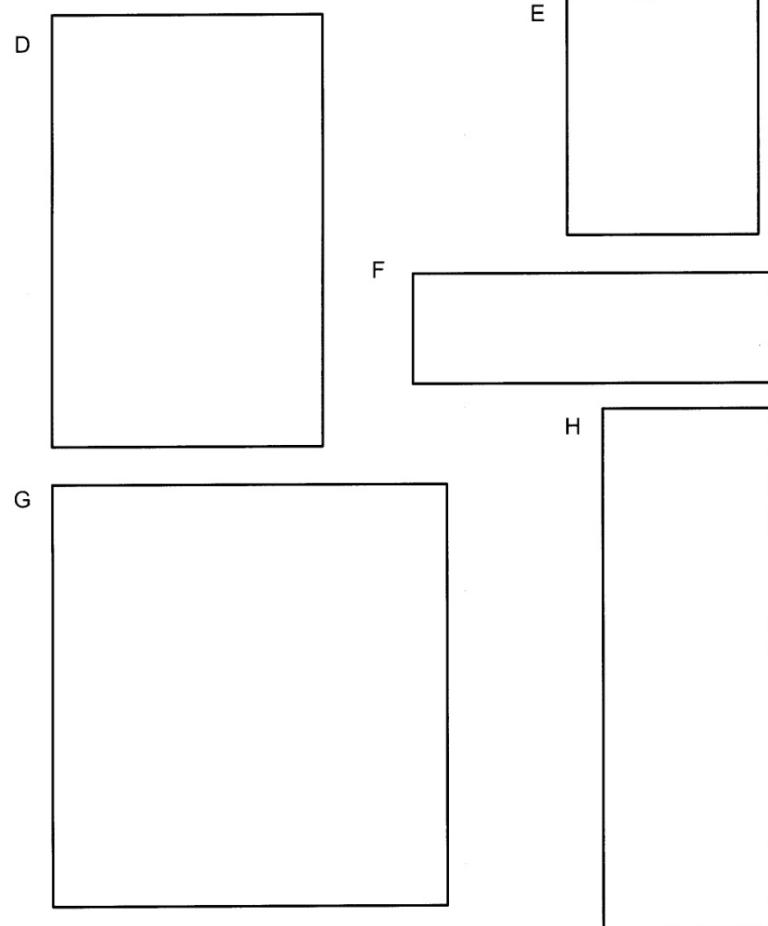
Dr. Eileen Faulkenberry



Group 1

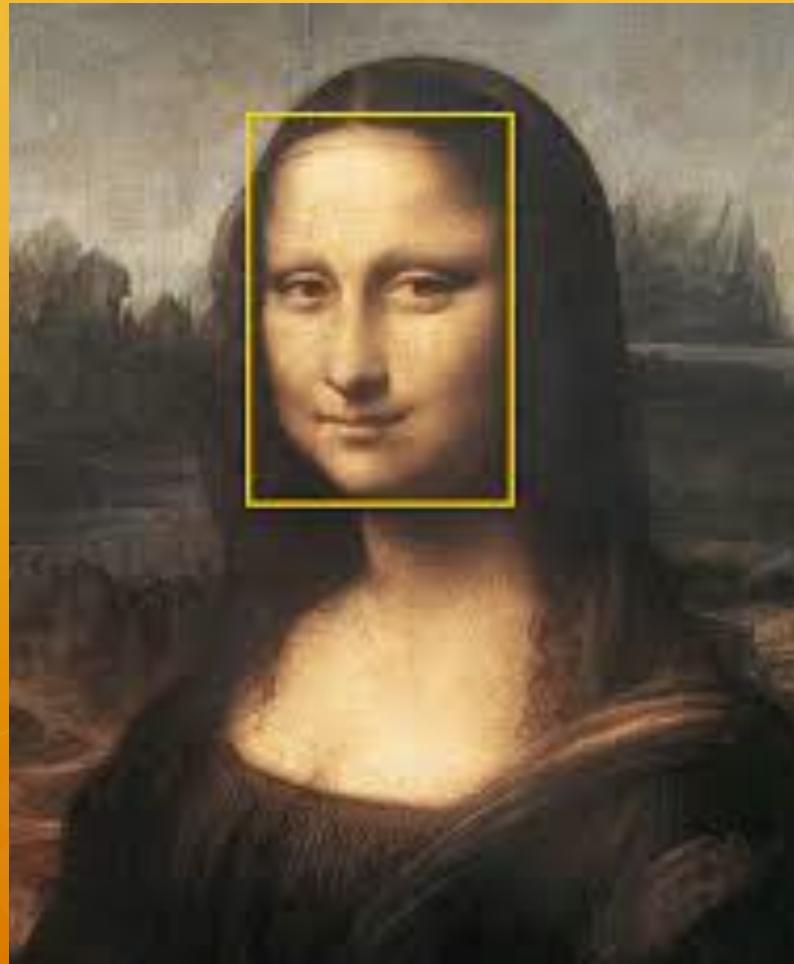


Group 2



Rectangle	Length	Width	Length/Width
A			
B			
C			
D			
E			
F			
G			
H			





✿ Find the width and length of the rectangle that frames Mona Lisa's face.

- ✿ Using your centimeter paper, color a 1x1 square.



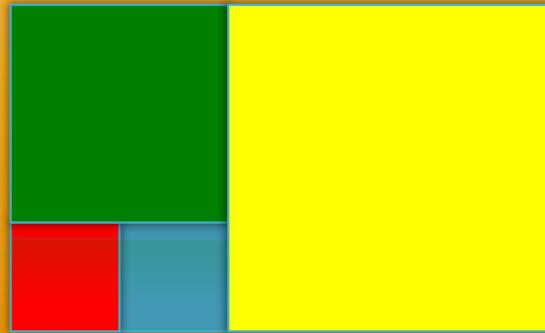
- ✿ Using your centimeter paper, color a 1x1 square to the left of your first square.



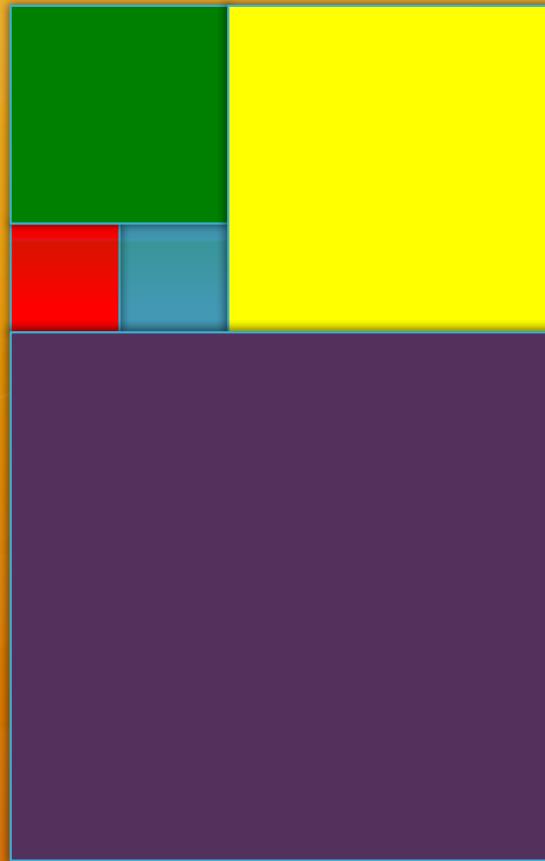
- ✿ Using your centimeter paper, color a 2x2 square above.



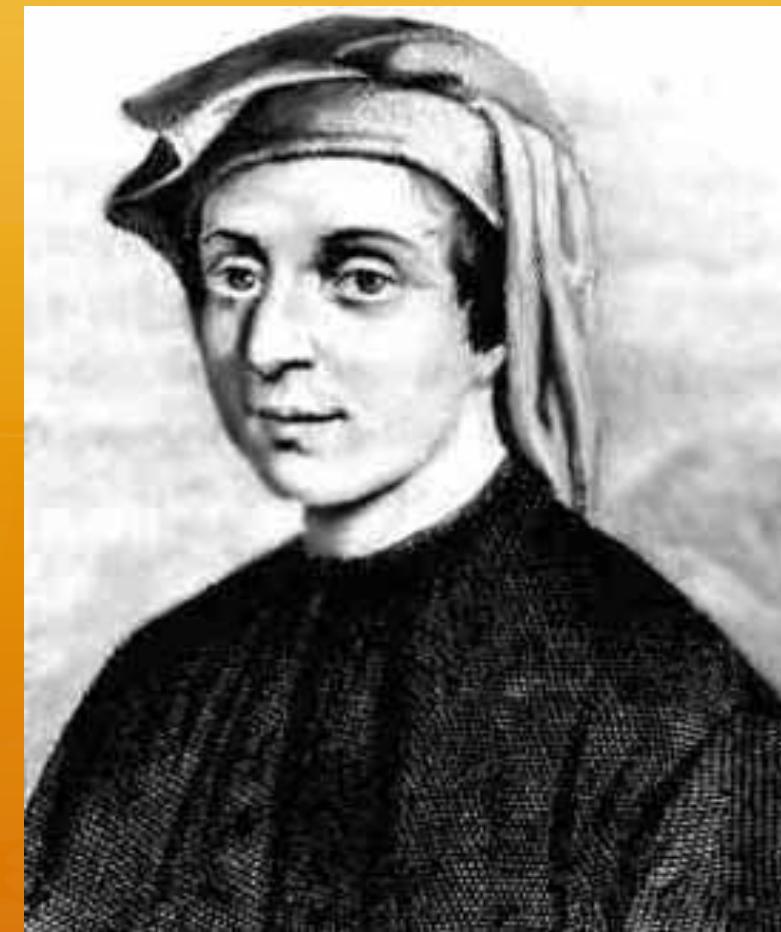
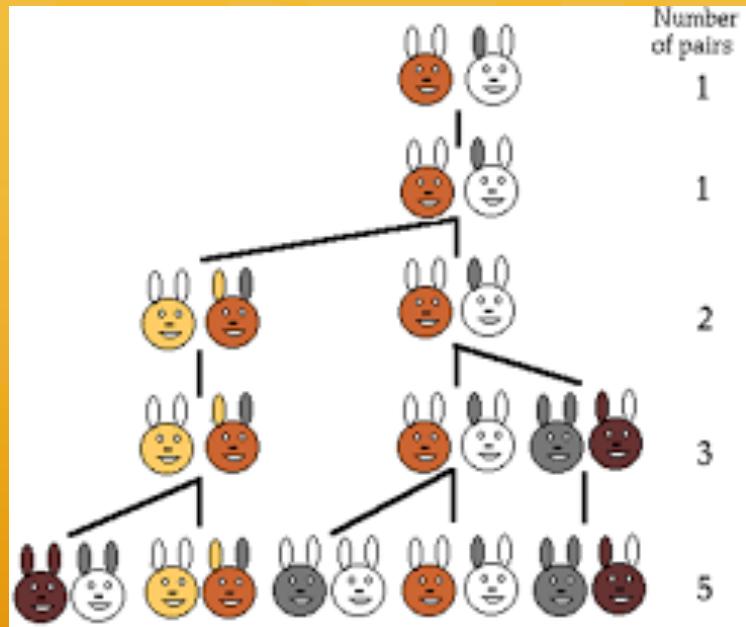
- ✿ Using your centimeter paper, color a ?x? square to the right.

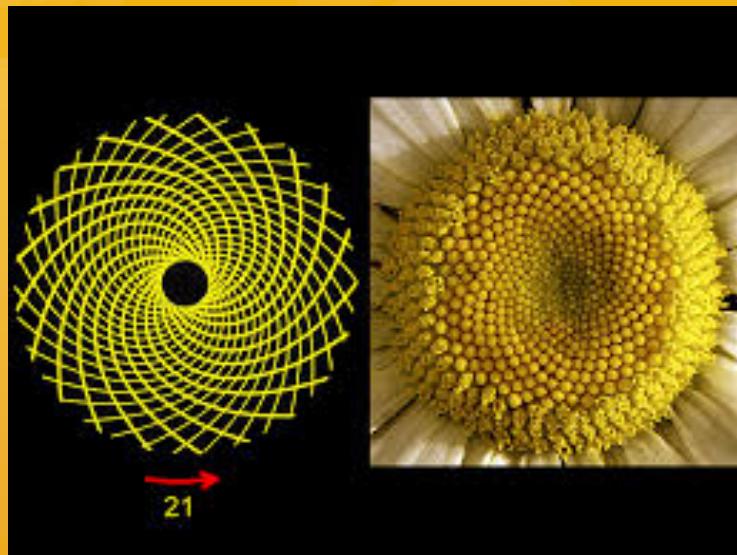


- ✿ Using your centimeter paper, color a ? x ? square (where?).



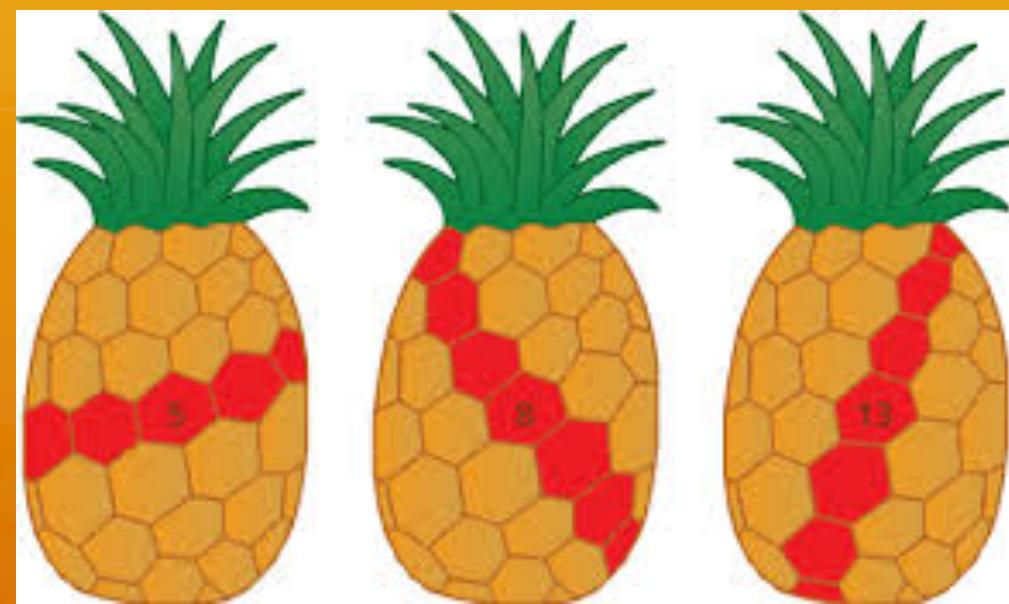
Fibonacci





(Figure 3: Fibonacci Numbers and Petals of Flowers)





Square added	Length	Width	Ratio: Length to Width
1x1	1	1	
1x1	2		
2x2			
3x3			
4x4			

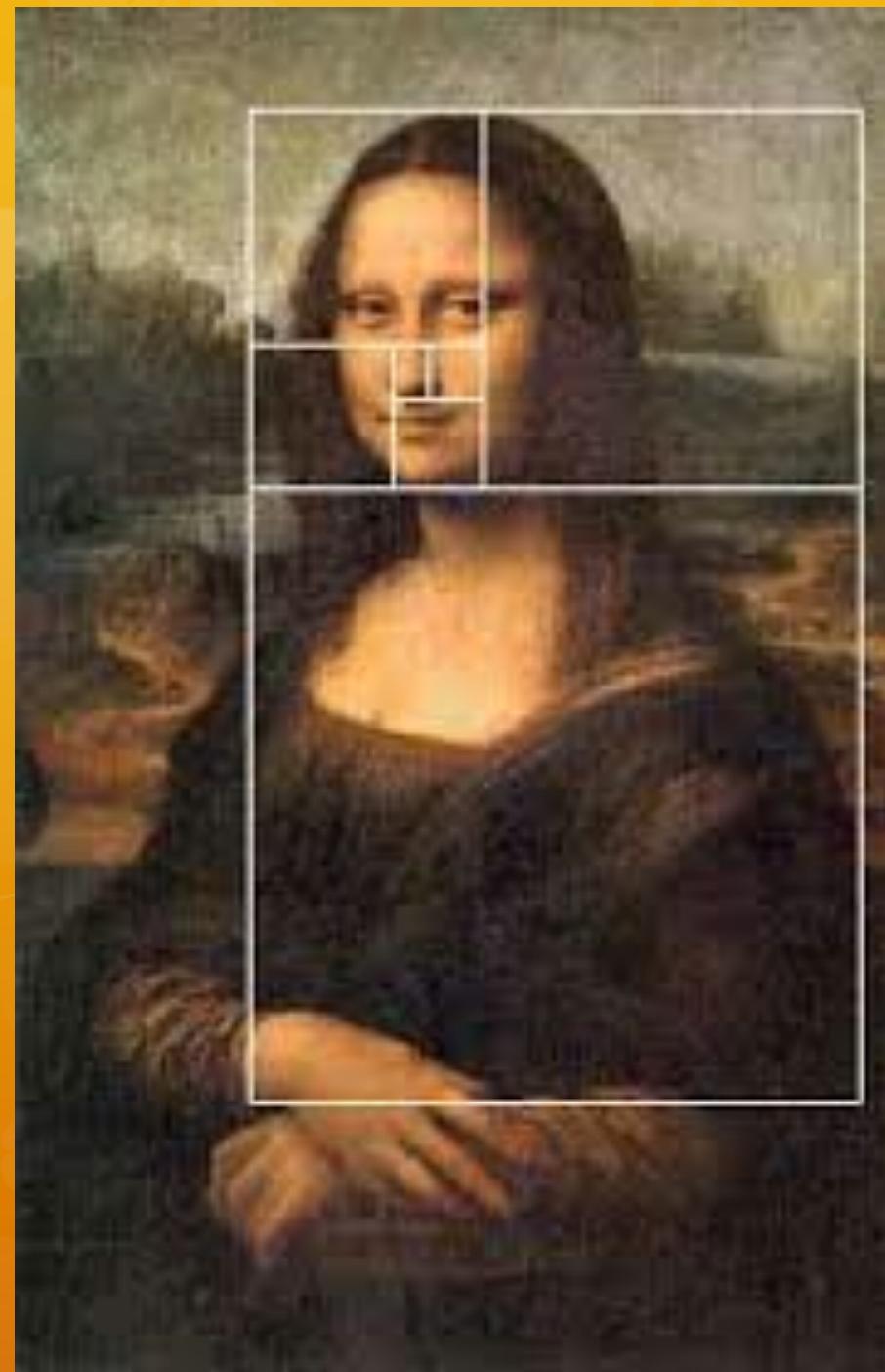
What is a ratio?

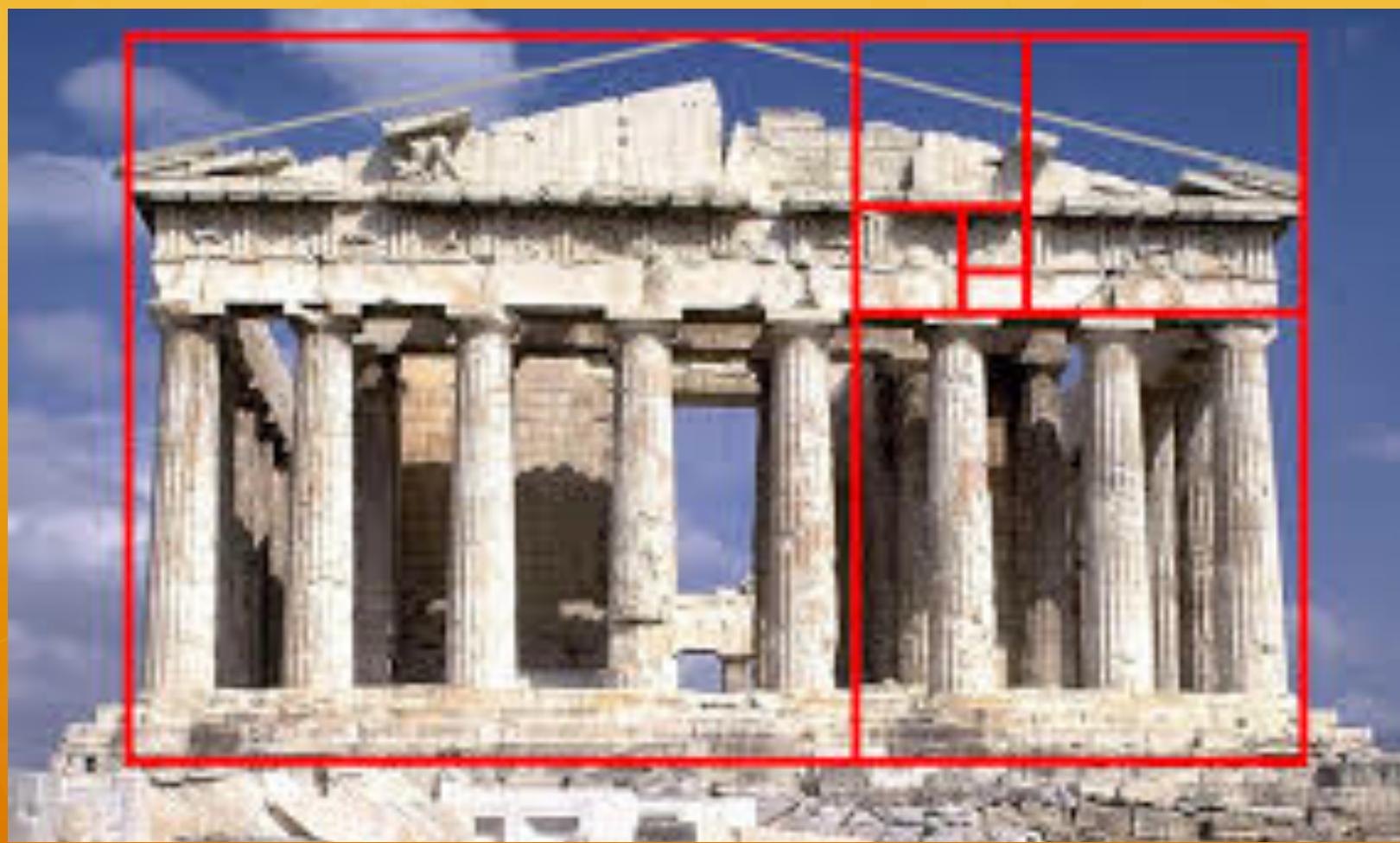
What is a ratio?

- ✿ A ratio is a comparison of two quantities.
- ✿ In this case, we are comparing the length of the rectangle to the width.

What is a ratio?

- ✿ A ratio is a comparison of two quantities.
- ✿ In this case, we are comparing the length of the rectangle to the width.
- ✿ If we continue this pattern, the ratio approaches $\varphi \approx 1.618$





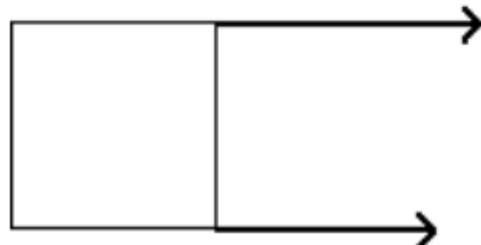
How do we construct a golden rectangle?

To create a rectangle with this golden ratio:

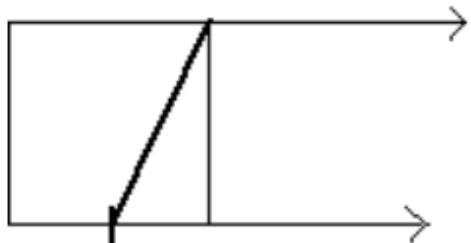
1. Draw a square.



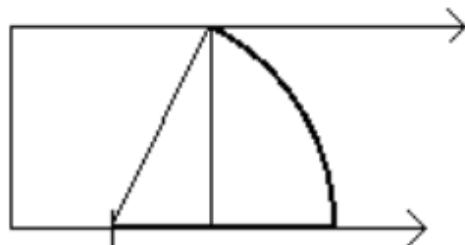
2. Extend two parallel sides.



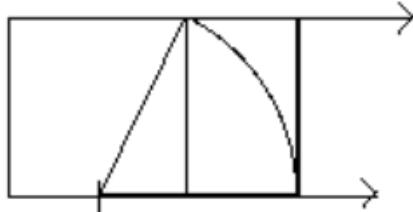
3. Draw a line from the midpoint of one side of the square to the opposite corner.



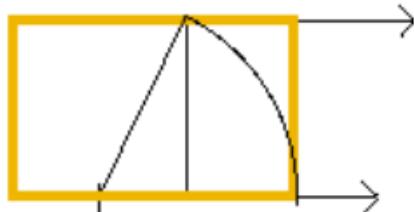
4. Using the line you just drew as a radius, draw an arc between the two parallel lines.

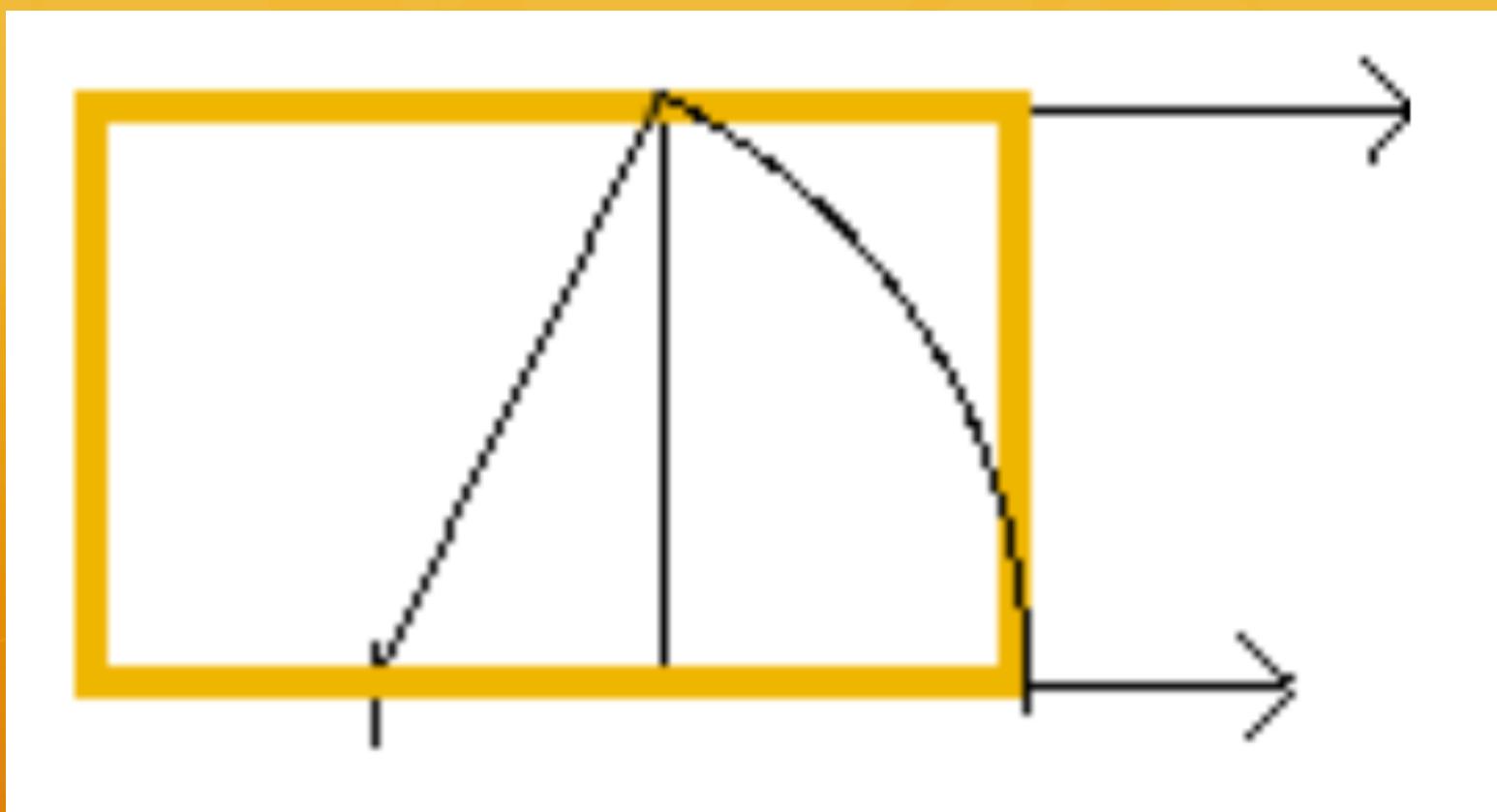


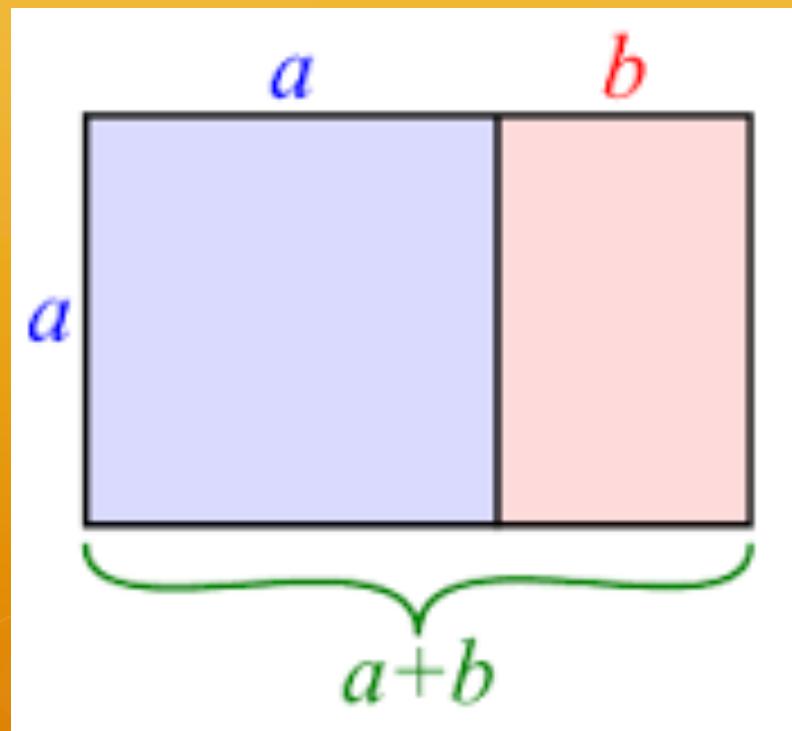
5. Draw a perpendicular line from between the parallel lines from the intersection of the arc on the bottom line.



6. You now have a golden rectangle.



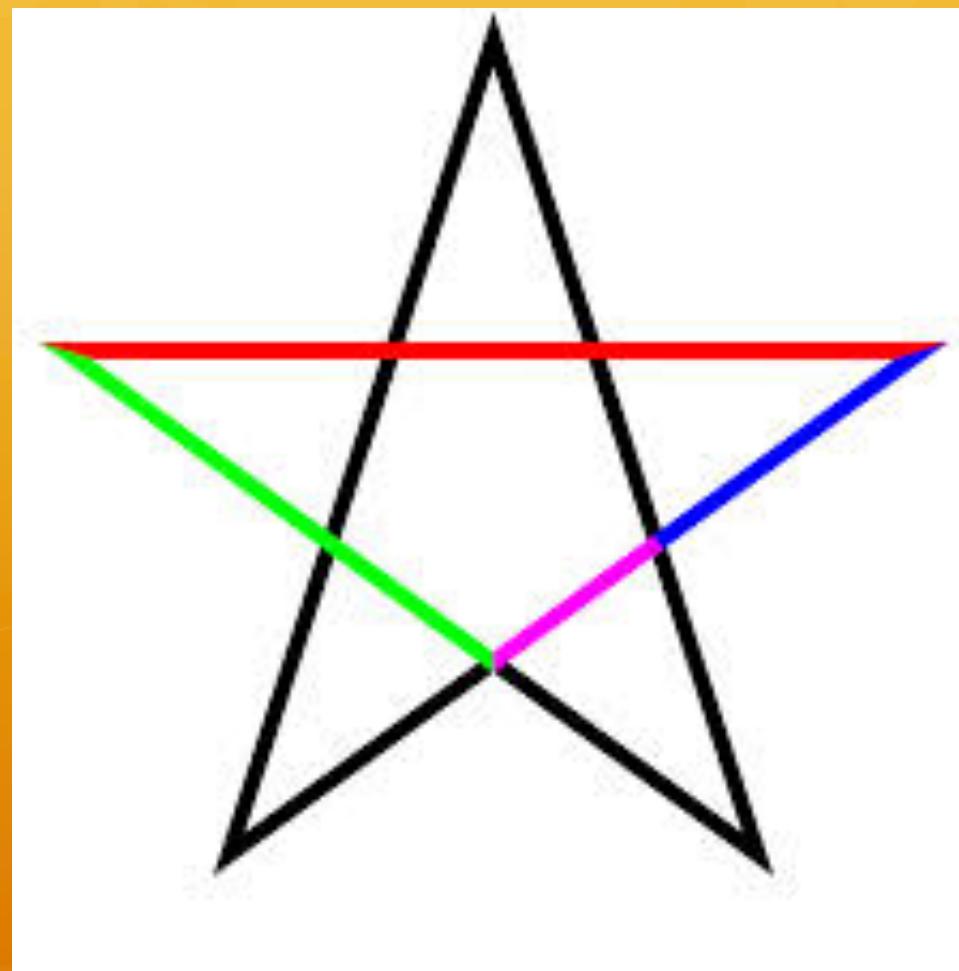




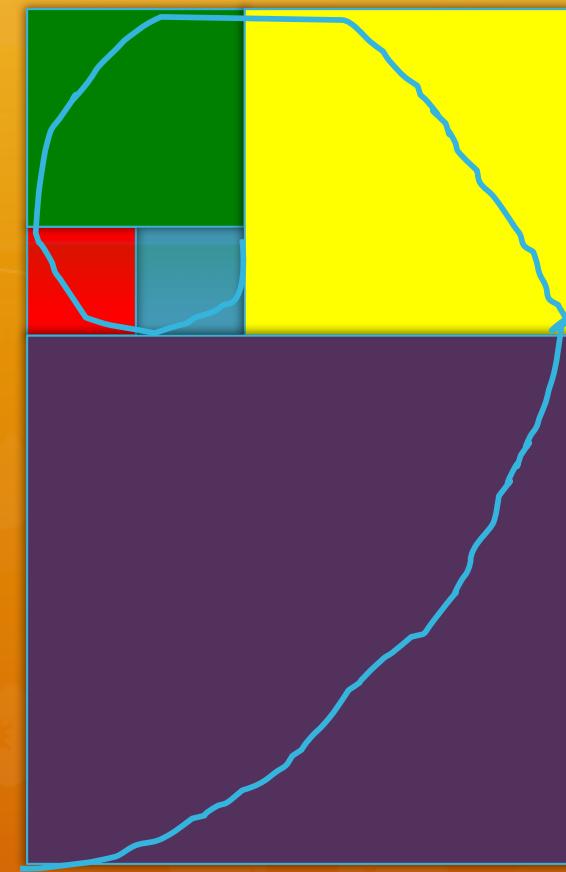
A diagram illustrating the derivation of the golden ratio formula. It shows a blue horizontal bar divided into two segments by a yellow vertical line. The total length is labeled $a+b$, the left segment is labeled a , and the right segment is labeled b . Above the bar, a blue bracket indicates division: $a \div b$ and $a+b \div a+b$. Below the bar, a green bracket indicates division: $a \div b$. Arrows point from the labels a and b to their respective segments.

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

Can you find φ ?



- ✿ Using your compass, draw an arc for each square with the radius of the side of that square.

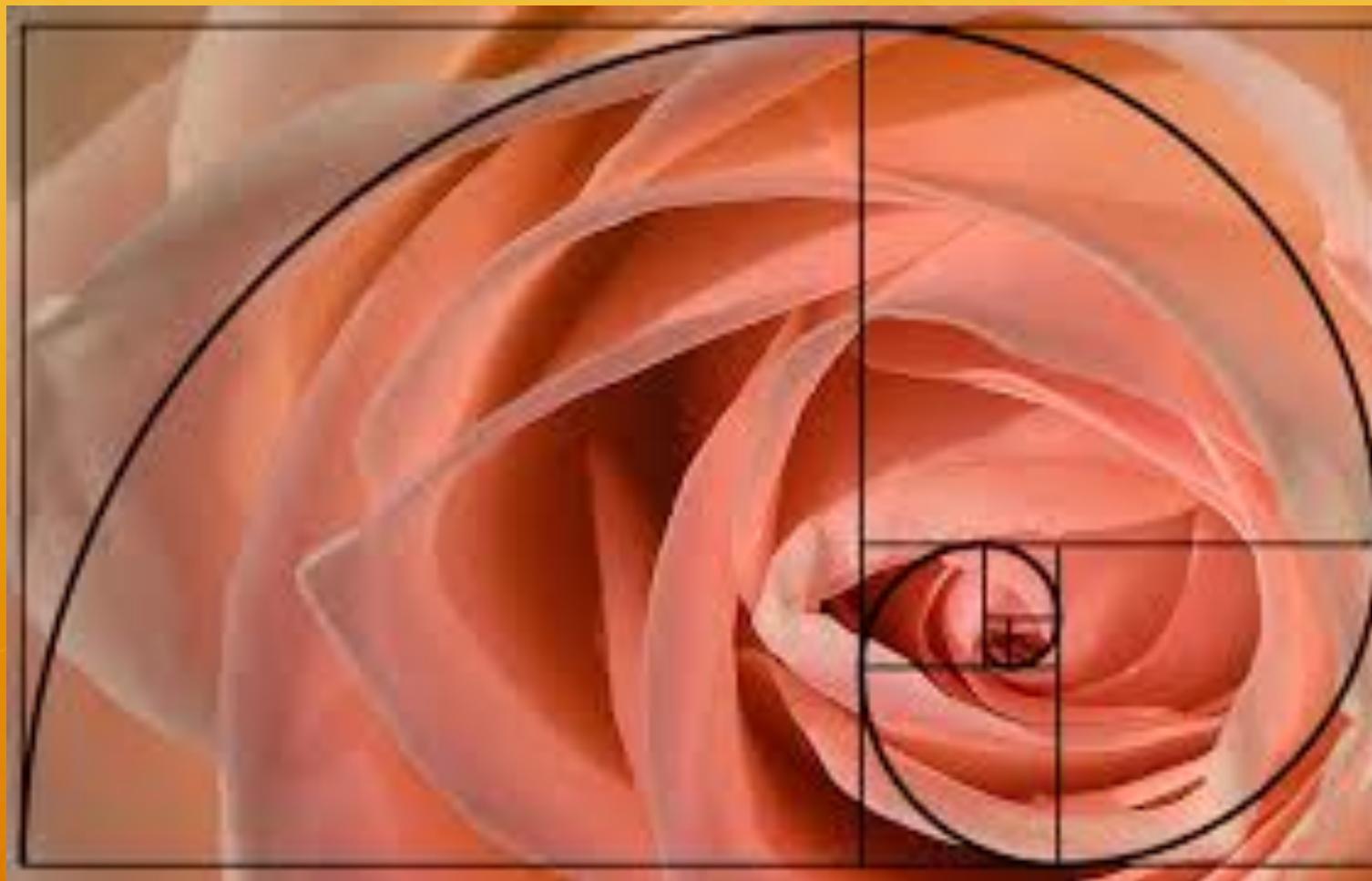


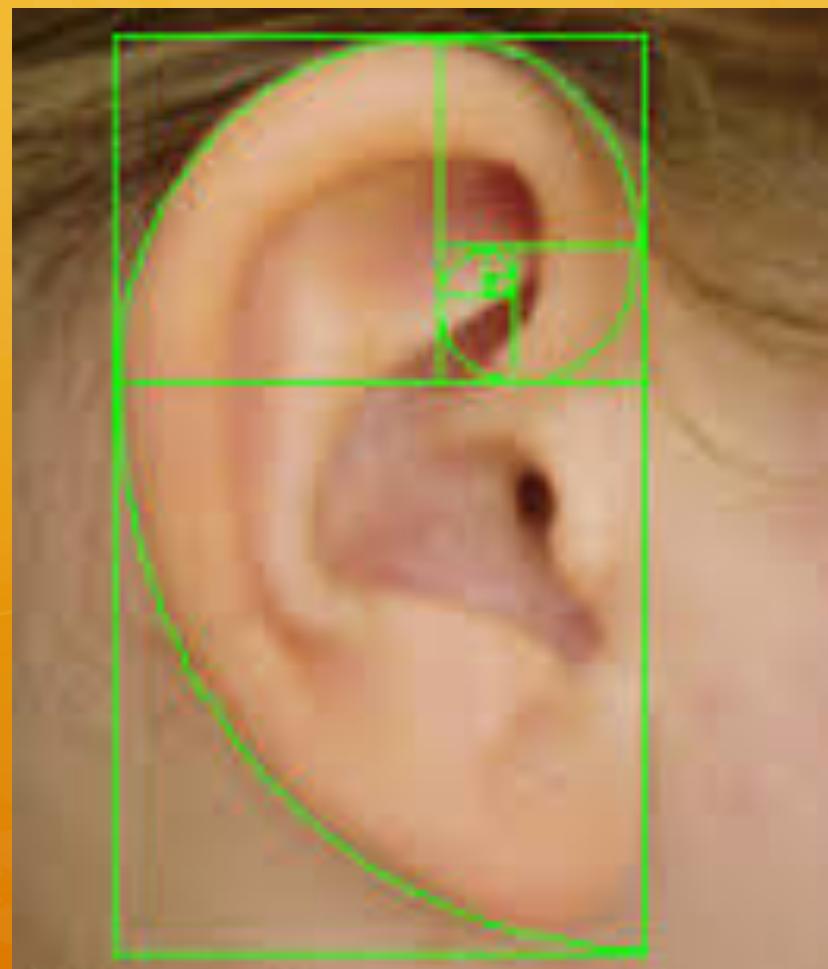




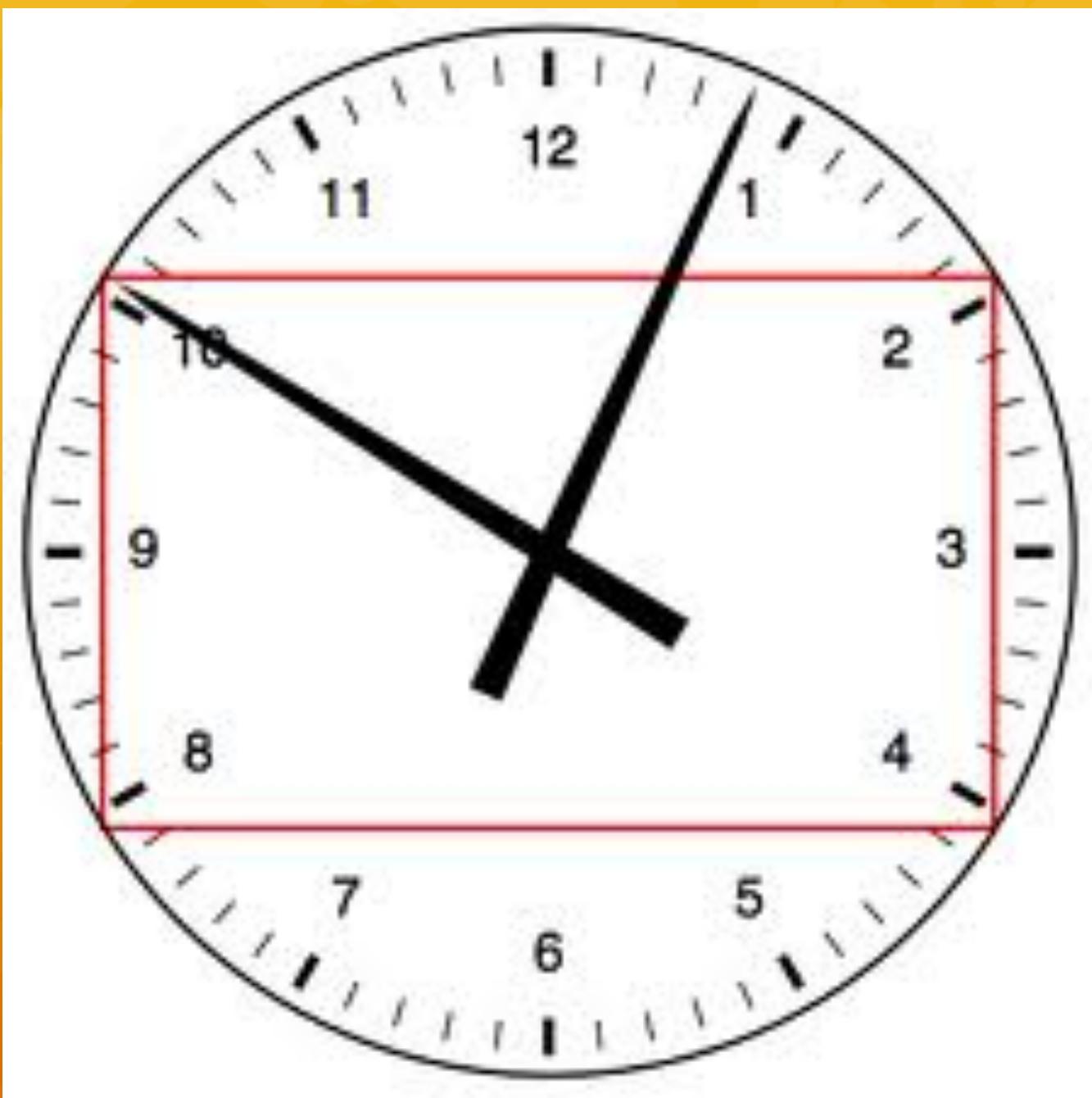


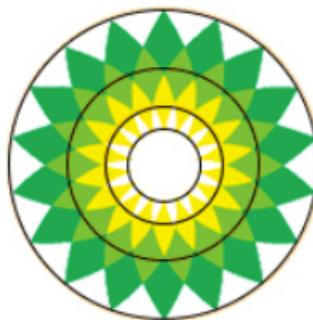
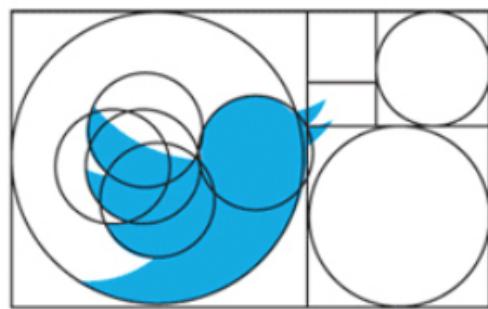




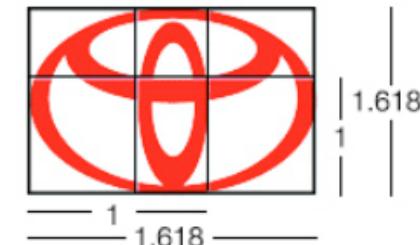
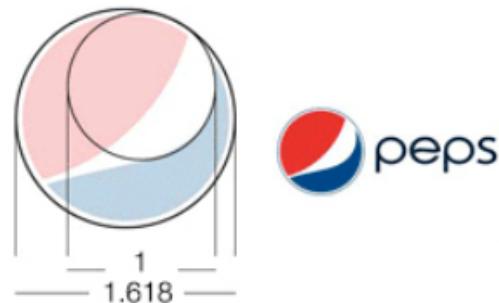


Where else do we find the golden ratio?





The concentric circles follow Golden Ratio
Yep, that's a \$221M design ladies & gents!



twitter Search Home Profile Messages stop

What's happening?

Timeline @Mentions Retweets Searches Lists

Tweets mentioning @stop

 Coley Woppler
@stop @zhanna Correction: Three-PERSON design team.
from Potrero, San Francisco
33 minutes ago

 ozanilbey Ozan İlbeý Yılmaz
Dear #NewTwitter, "good proportion" is one of the main design principles.
Remember? @stop @design
1 hour ago via web 52 Favorites 13 Retweets 15 Reply

 ashleyvv Ashley Veselka
Right? LOVE #newtwitter! Great job @stop @Zhanna RT
@jonstovalt man, twitter, you really know how to do webz
1 hour ago

 Zhanna Zhanna Shamis
@goldman @stop right on!
from SoMa, San Francisco
1 hour ago

close X

Dear #NewTwitter, "good proportion" is one of the main design principles.
Remember? @stop @design

1 hour ago via web 52 Favorites 13 Retweets 15 Reply

Mentioned in this tweet

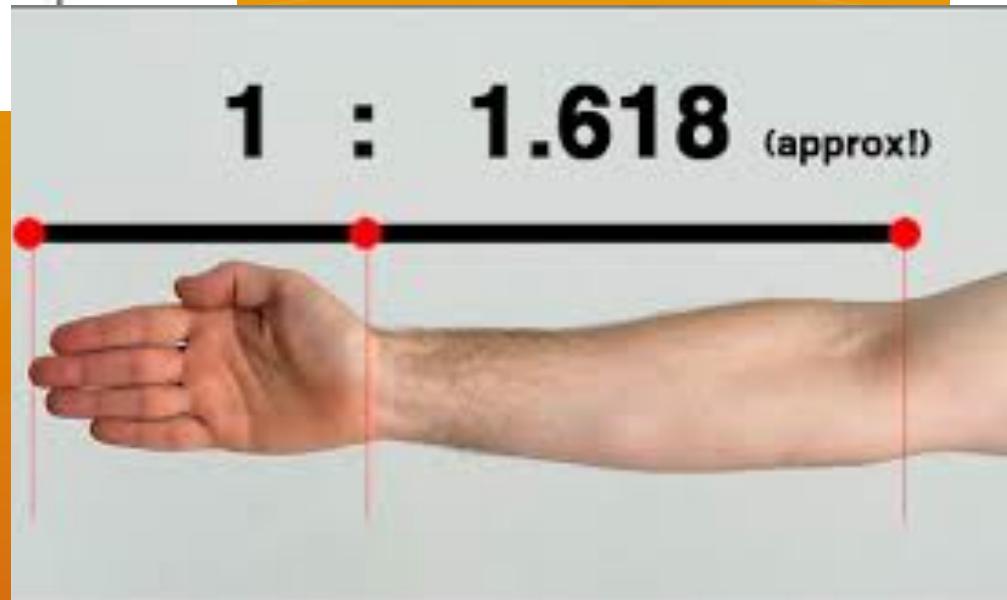
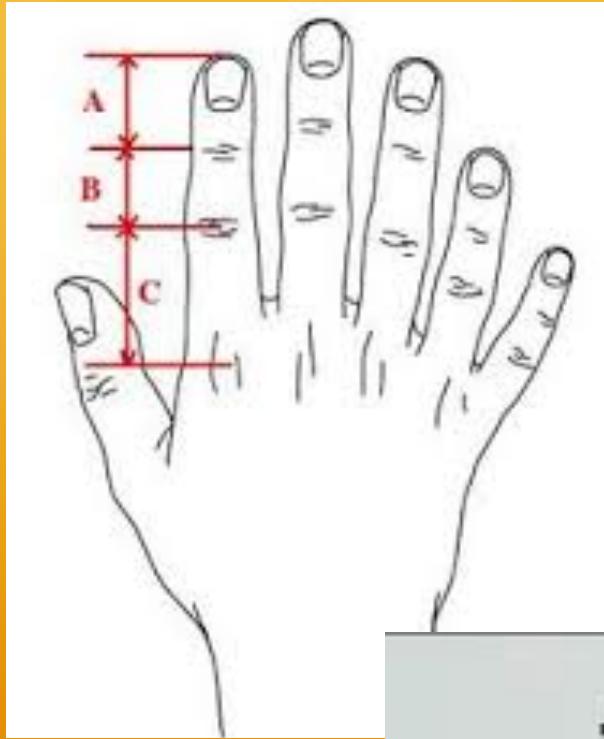
 design Twitter Design
Tweets from the Twitter Design Team.

Replies to this Tweet

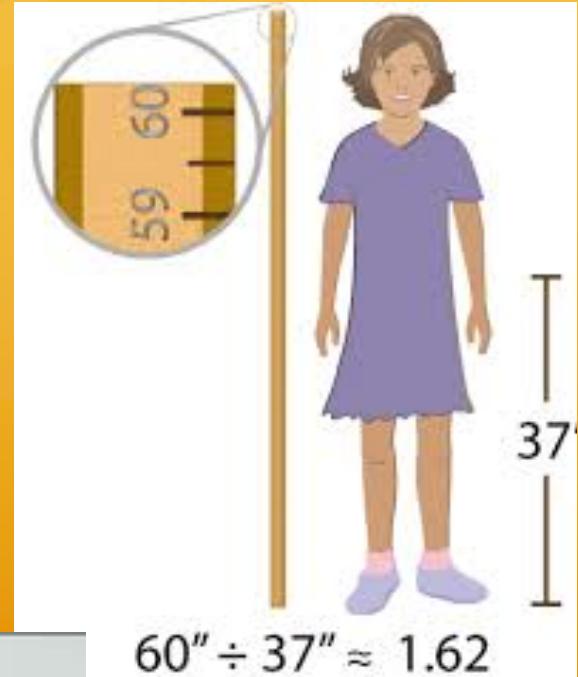
 ozansener ozansener
@ozanilbey ya o proportion baziñ ise yarlıyo :p ama gerekliginde buyumesi daha guzel olurdu.
from Princeton North, NJ
1 hour ago

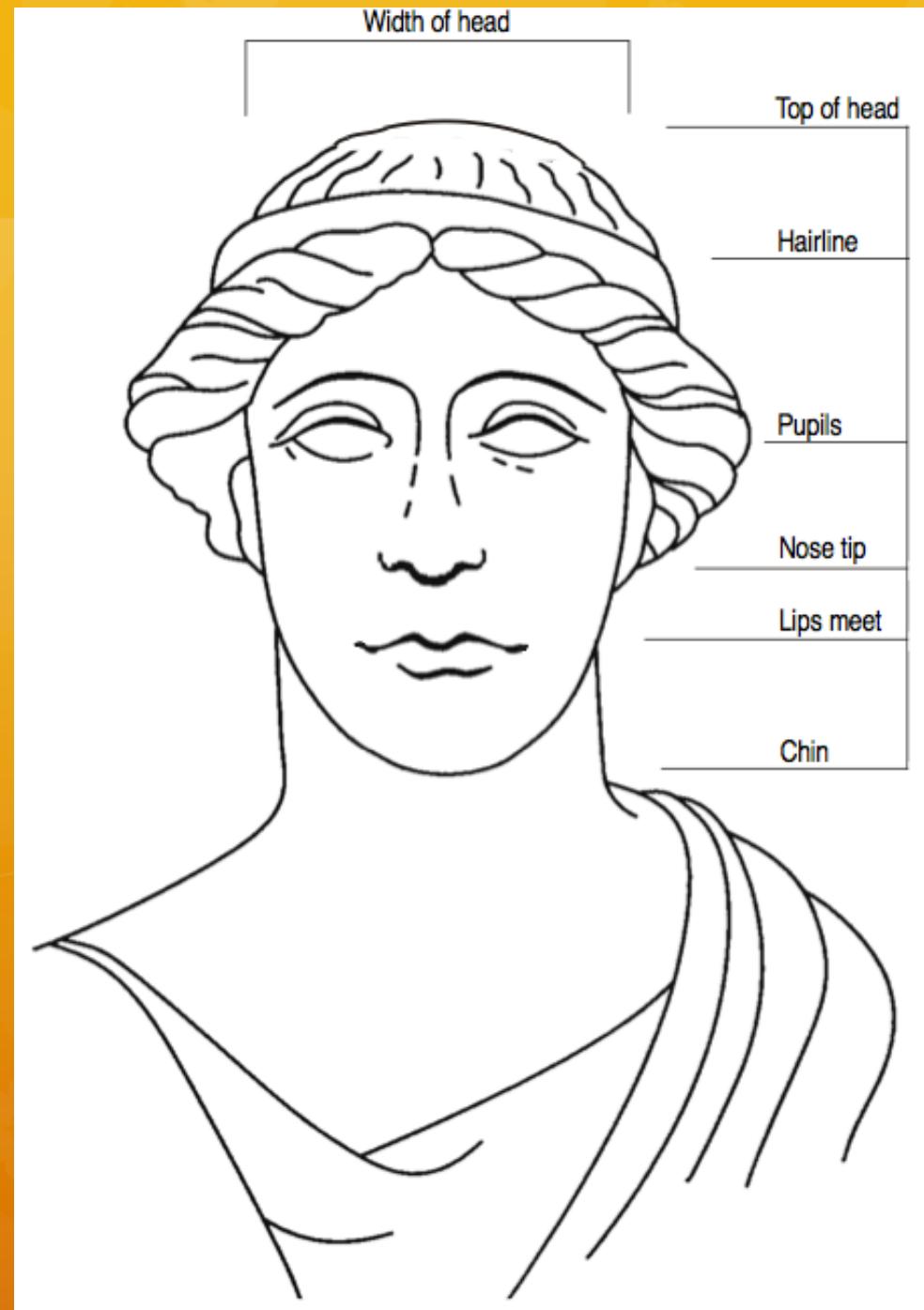
Tweets tagged with #NewTwitter

Golden Ratio and the human body



$$60'' \div 37'' \approx 1.62$$





From TI Explorations: Go for the Gold

Examples of the Golden Ratio

- ✿ On the next pages you will see examples of the Golden Ratio
- ✿ Many of them have a measurement instrument, called Golden Mean calipers, superimposed over the picture.
- ✿ This gauge was developed by Dr. Eddy Levin DDS, for use in dentistry and is now used as the standard for the dental profession.
- ✿ The gauge is set so that the two openings will always stay in the Golden Ratio as they open and close.

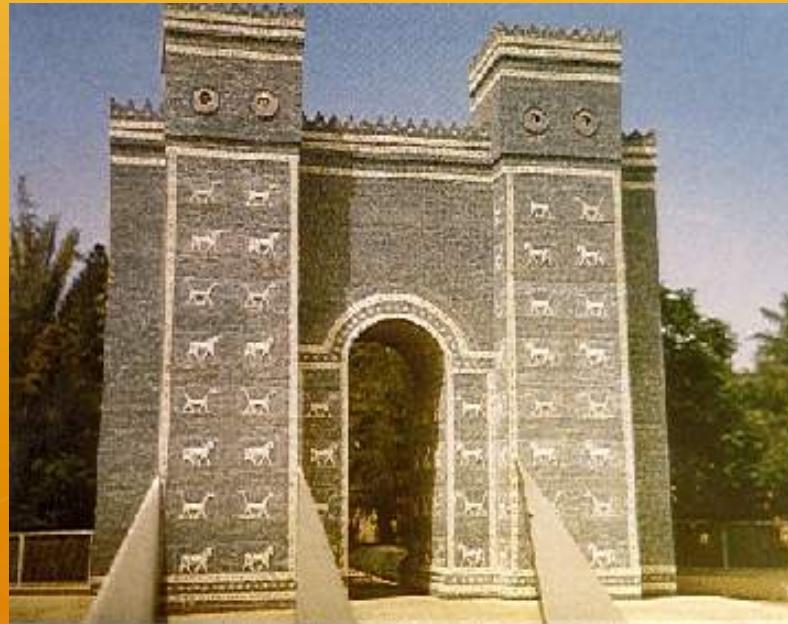




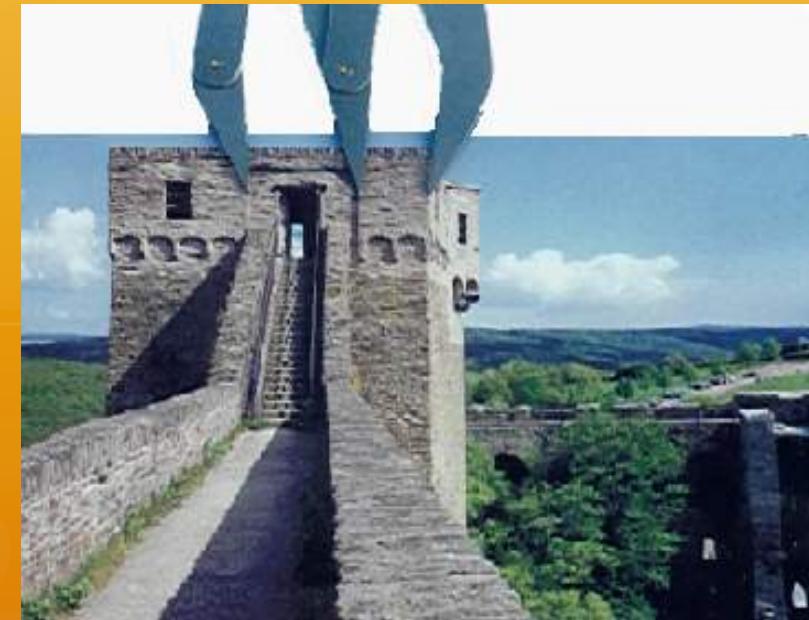
φ also appears in ...

- ✿ Architecture
- ✿ The Automotive industry
- ✿ Fashion
- ✿ General Design
- ✿ Nature

The Bagdad City Gate



The Great Wall of China



St. Paul's Cathedral - London



Windsor Castle







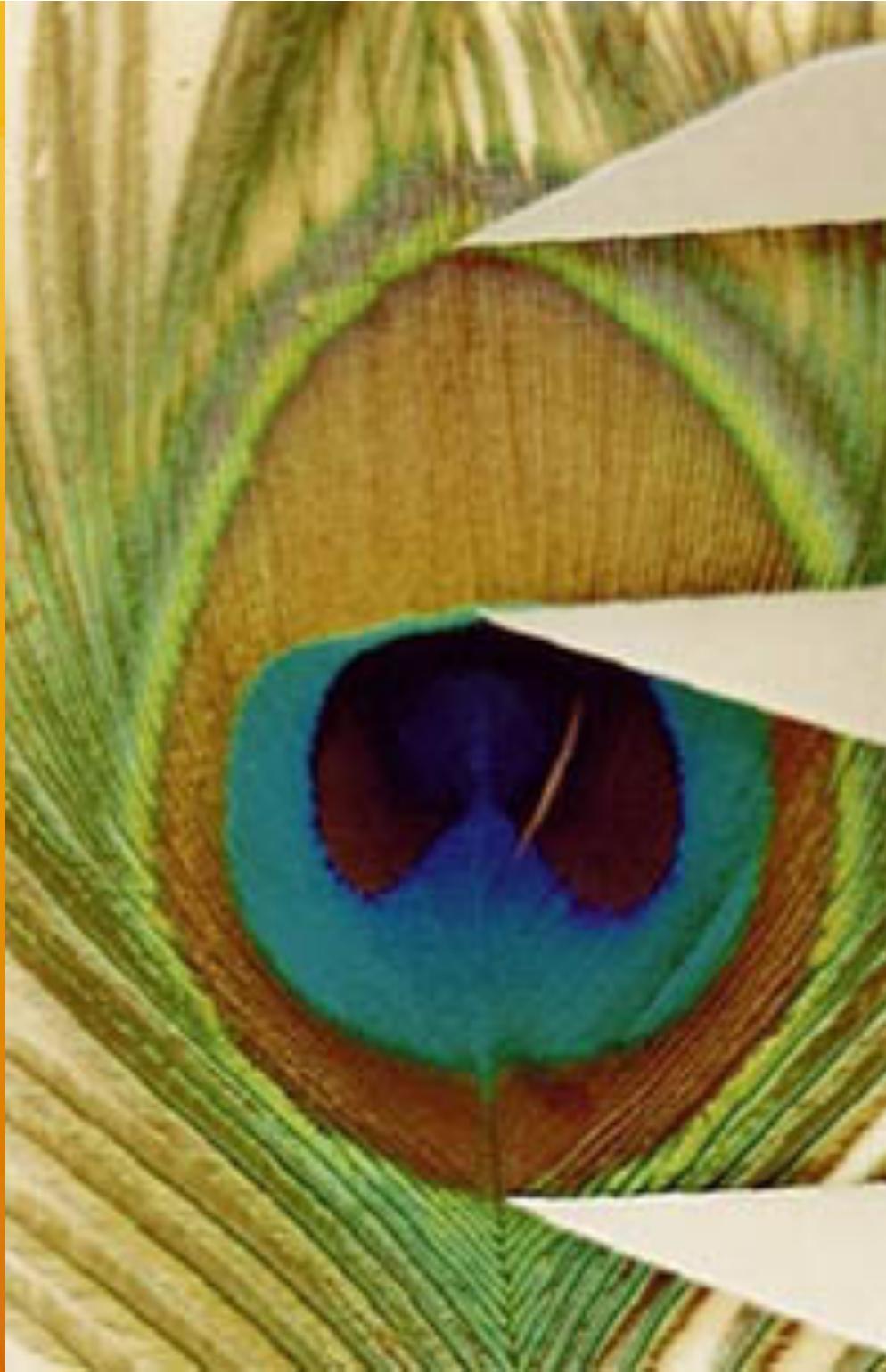




















Thank you!

Dr. Eileen Faulkenberry

Professor, Mathematics

Tarleton State University

efaulkenberry@tarleton.edu

