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Theoretical Highschool „Salamon Ernő”,Gheorgheni, ROMANIA

MATHS ALIVE

KA229 - Cooperation for Innovation and the Exchange of Good Practices

Strategic Partnerships for Schools Only

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Outstanding architecture in our country.

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Introduction.

- Square roots
- Cubic roots
- Irrational numbers
- Algorithm
- Trigonometry



index \rightarrow 2 $\sqrt{x} = z \leftarrow$ root

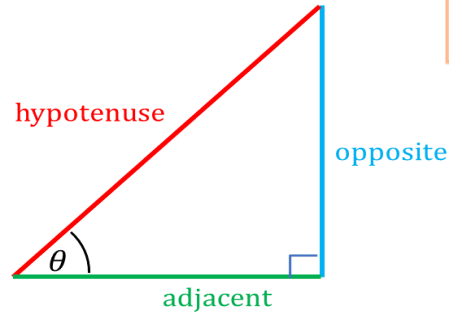
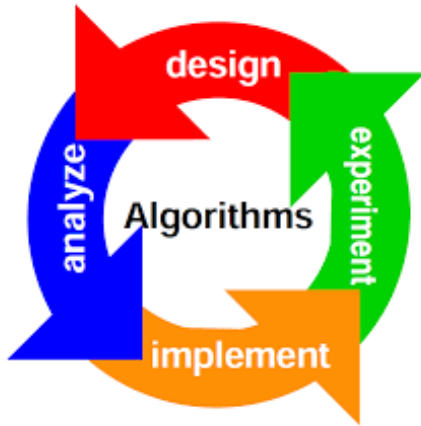
radical symbol \leftarrow $\sqrt{\quad}$

radicand \leftarrow x

index \rightarrow 3 $\sqrt[3]{x} = z \leftarrow$ root

radical symbol \leftarrow $\sqrt[\quad]{\quad}$

radicand \leftarrow x



$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Irrational number

A number that cannot be written as a fraction

Examples :

$$\sqrt{5} \quad \sqrt{10} \quad \sqrt{3} \quad \sqrt{15}$$



**Historical
backgrounds.**

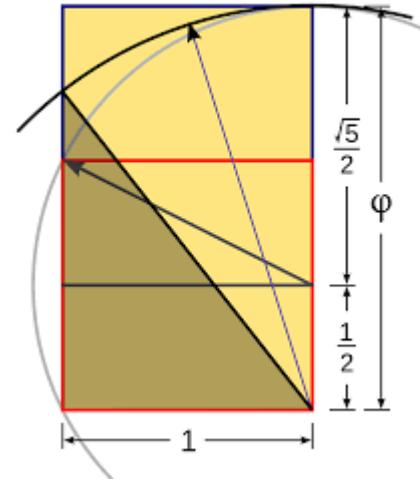
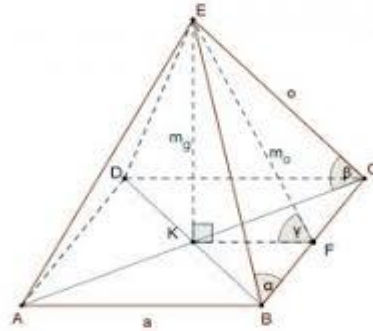
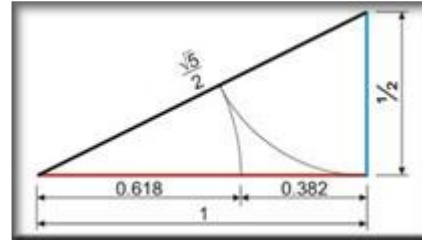
Babylon.

- Surface and volume calculations
- Pythagoras's formula
- truncated cone $\rightarrow \frac{1}{2}(3R^2+3R^2)$
- estimated pi to 3 whole



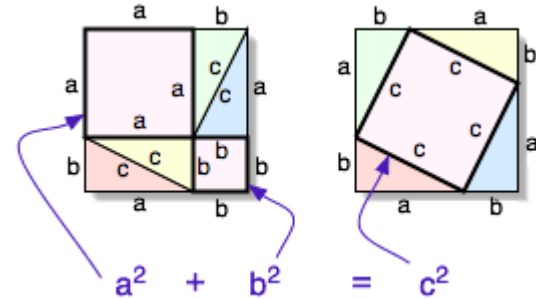
Egypt.

- Kepler triangle
- Golden ratio
- Cheops pyramid



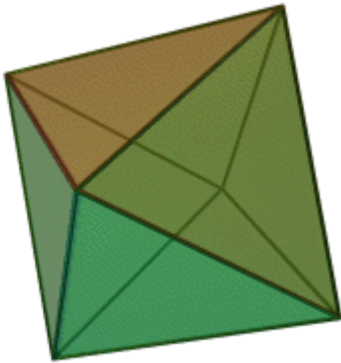
Greece.

- Famous scientist:
Thales and Pythagoras

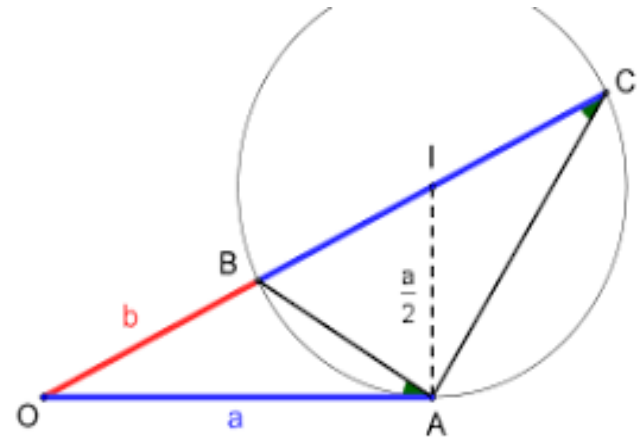


Greece.

- The cube's and the octahedron's harmonic mean.

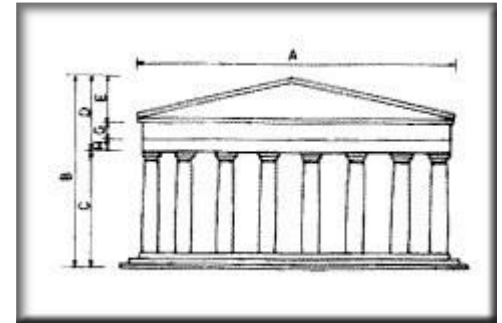
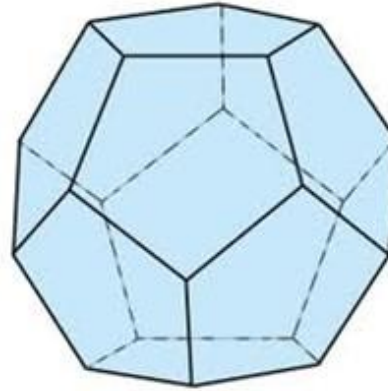


- Regular pentagon with the golden ratio's rules.



Greece.

- Buildings out of simple geometrical shapes
- Dodecahedron shaped monument
- Temple in Athens

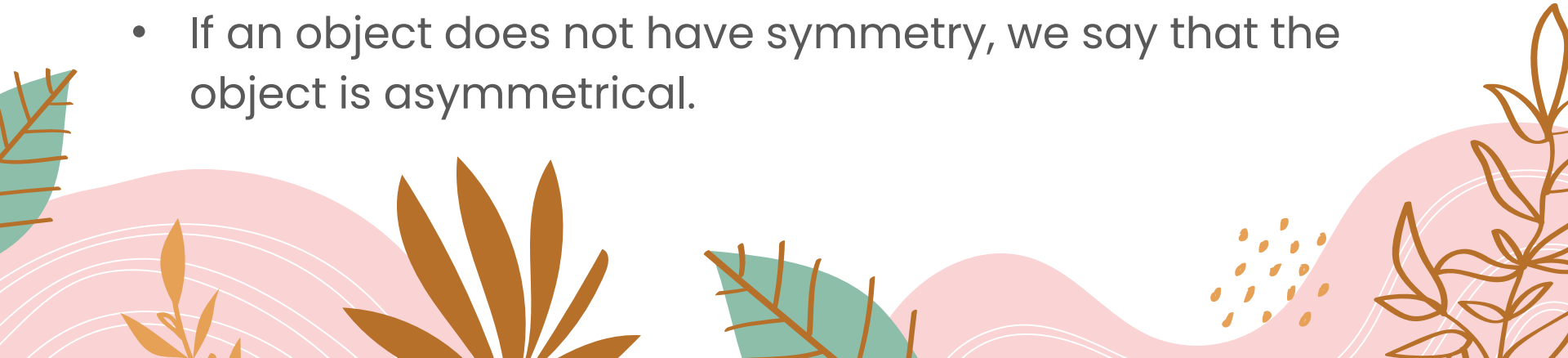


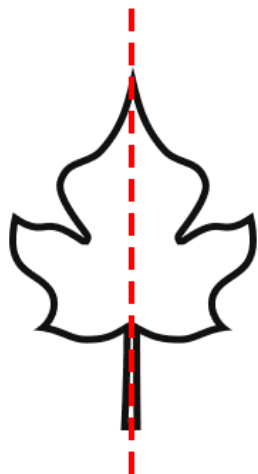


Symmetry.

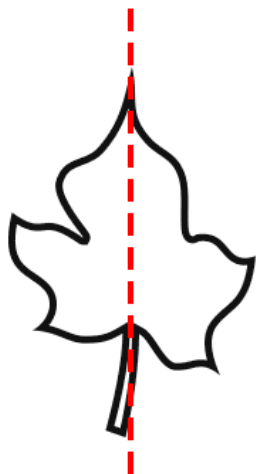
What is symmetry?

- In Mathematics, symmetry means that one shape is identical to the other shape when it is moved, rotated, or flipped.
- If an object does not have symmetry, we say that the object is asymmetrical.

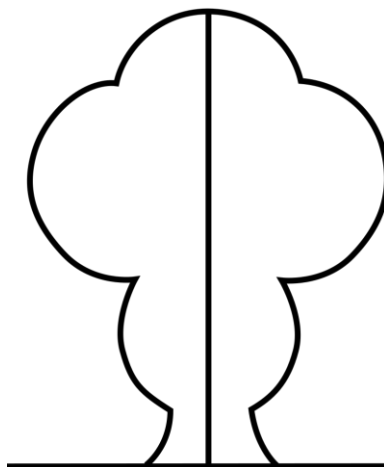




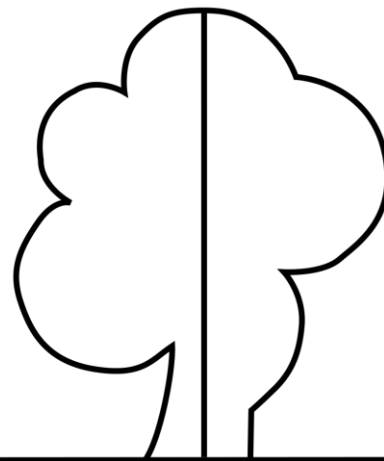
Symmetrical



Asymmetrical



SYMMETRIC

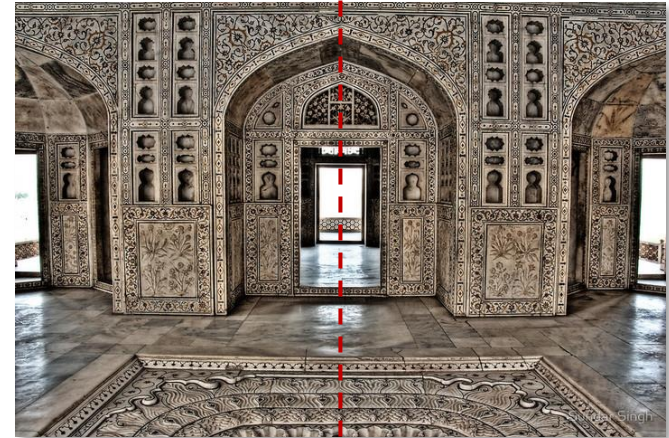


ASYMMETRIC



Symmetry in architecture.

- Symmetry, as previously mentioned above, is visual balance in shapes or designs.
- Symmetry is a key element in Architecture because it helps the weight distribution of the structure.
- It is also used for designing, when making tessellations or patterns in the building.



"Sheesh Mahal" (the palace of Mirrors)

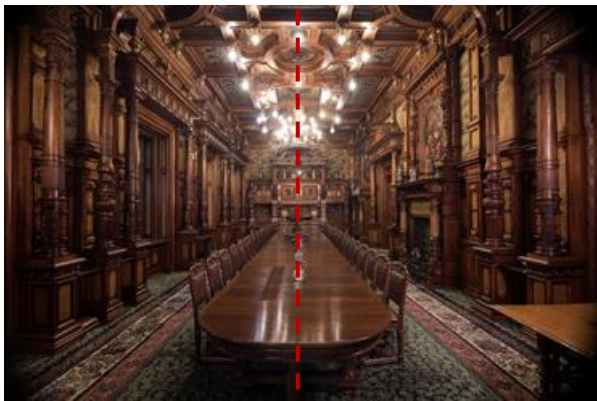


Peleş Castle.

Peleş Castle.

- Peleş Castle is located in Sinaia, Romania. It was built by Romanian King Carol I., between 1873 and 1914.
- This castle is one of the most important monuments of its kind in the 20th century Europe.
- Neo-Renaissance is a construction style uses or imitates the style elements of the Renaissance.
- The origin of Renaissance architecture is generally accredited to Filippo Brunelleschi (1377–1446).





● Symmetry in Peleş Castle.

- The walls and windows are equal.
- The windows and the columns are symmetrical



The Black Church.



Gothic architecture.



Huge capacity.



Most famous monument.



**Largest
collection
of carpets.**

Sculptures.





Archbishopric Cathedral of Gyulafehérvár.



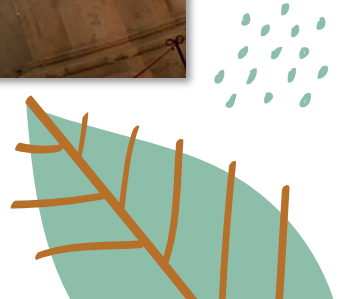
About The Cathedral.

- Church in the diocese of Transylvania –founded by King St. Stephen.
- This building is really important in the Transylvanian architecture.
- The construction is romanesque.

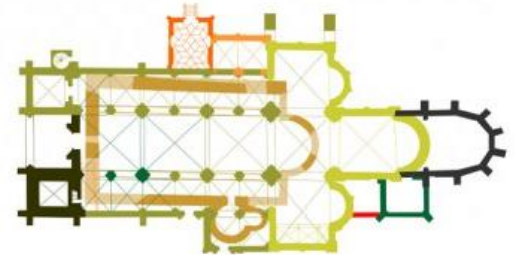
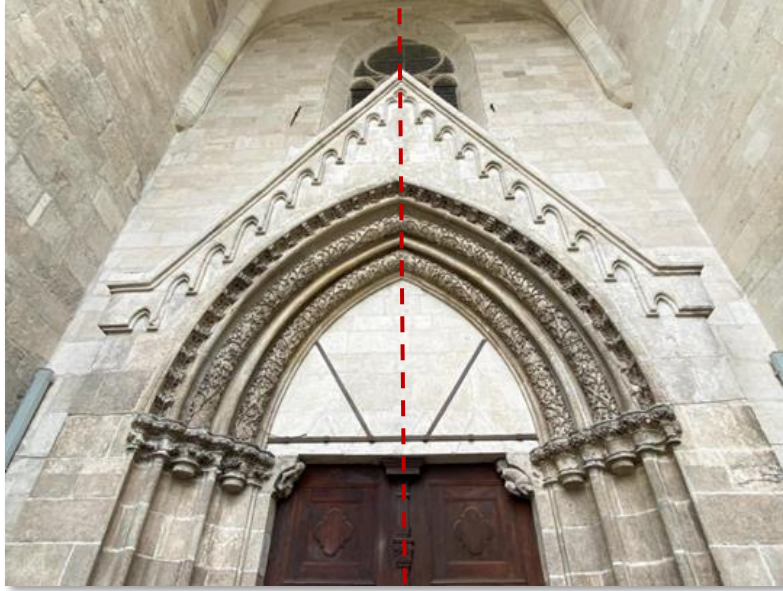
Romanesque signs on the church.

- Big walls and layered doors
- Built like a fortress
- Arched interior
- Small windows
- Beautiful frescoes
- Cross-plan floor





Symmetry.





**Thank you for
your time.**