



Pythagorean Theorem

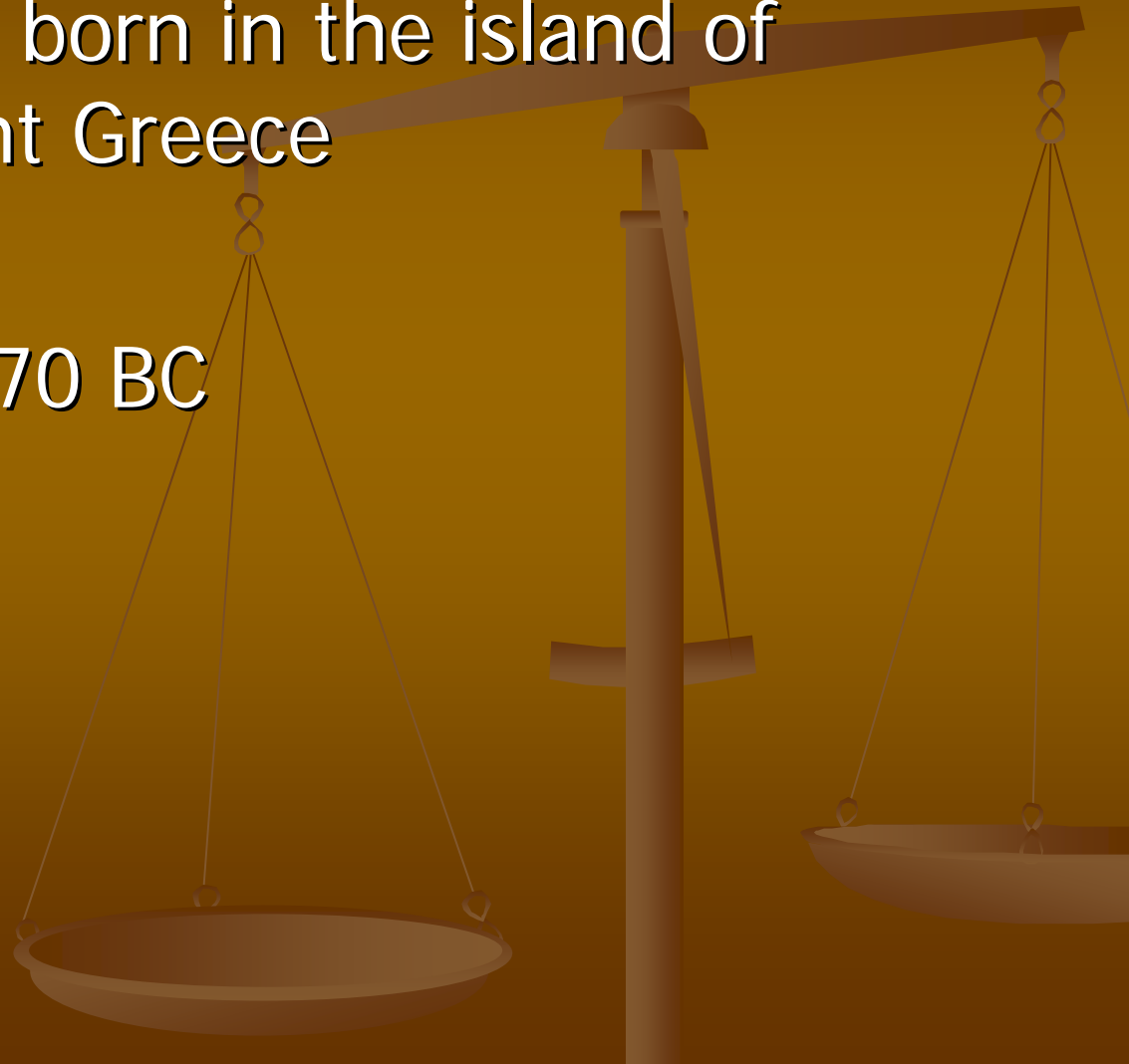
GEOMETRY

Cesar Chavez Academy

By Aldo Hernandez

Life of Pythagoras

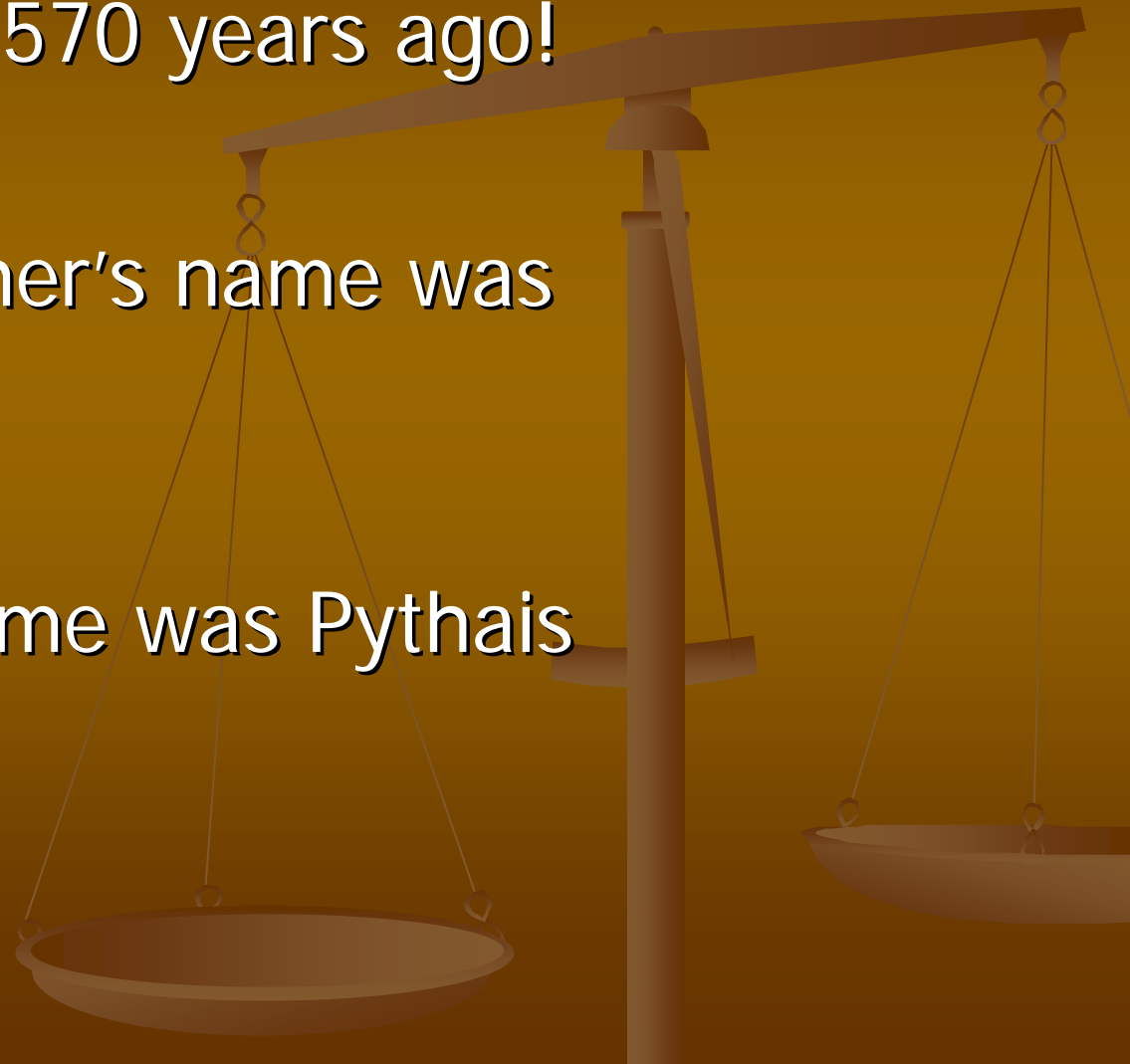
- Pythagoras was born in the island of Samos in ancient Greece
- it was around 570 BC





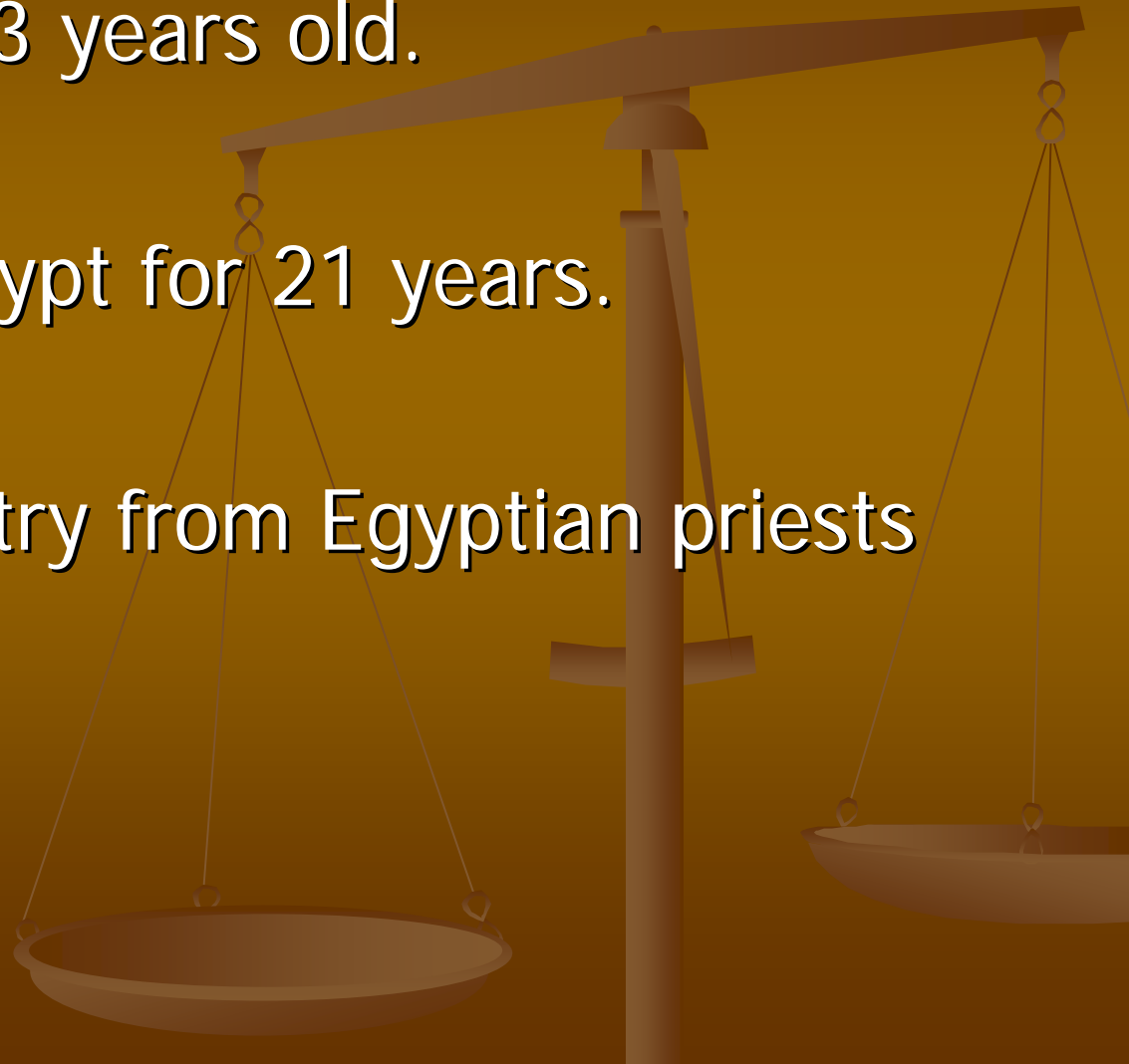
Pythagoras' family

- That is about 2,570 years ago!
- Pythagoras' father's name was Mnesarchus
- His mother's name was Pythais



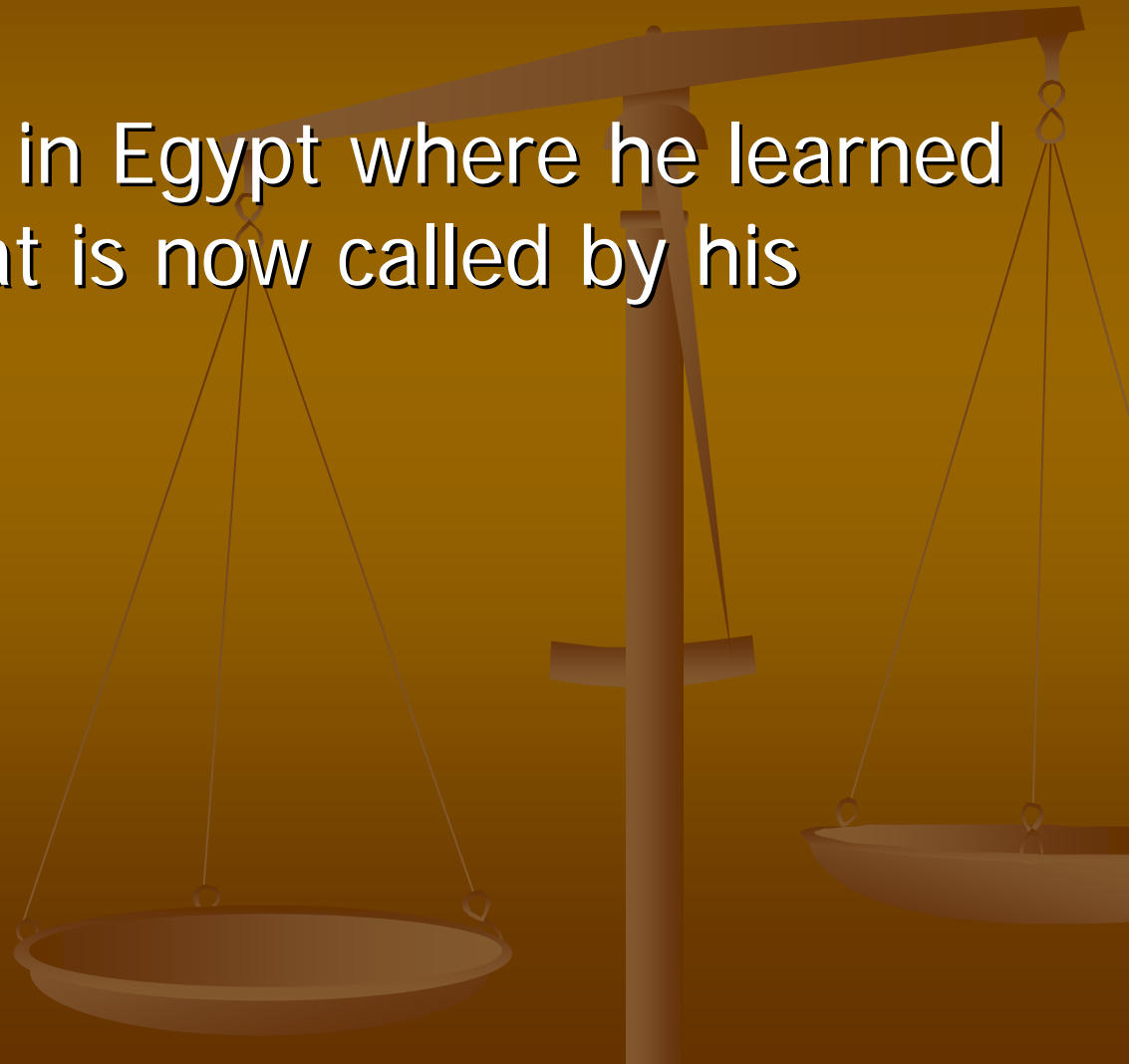
Pythagoras in Egypt

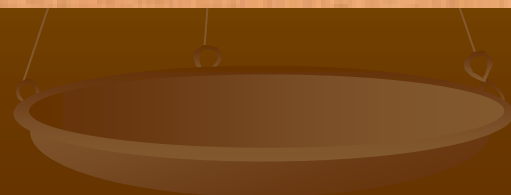
- When he was 23 years old.
- He stayed in Egypt for 21 years.
- learning geometry from Egyptian priests



Pythagorean Theorem

- It was probably in Egypt where he learned the theorem that is now called by his name.



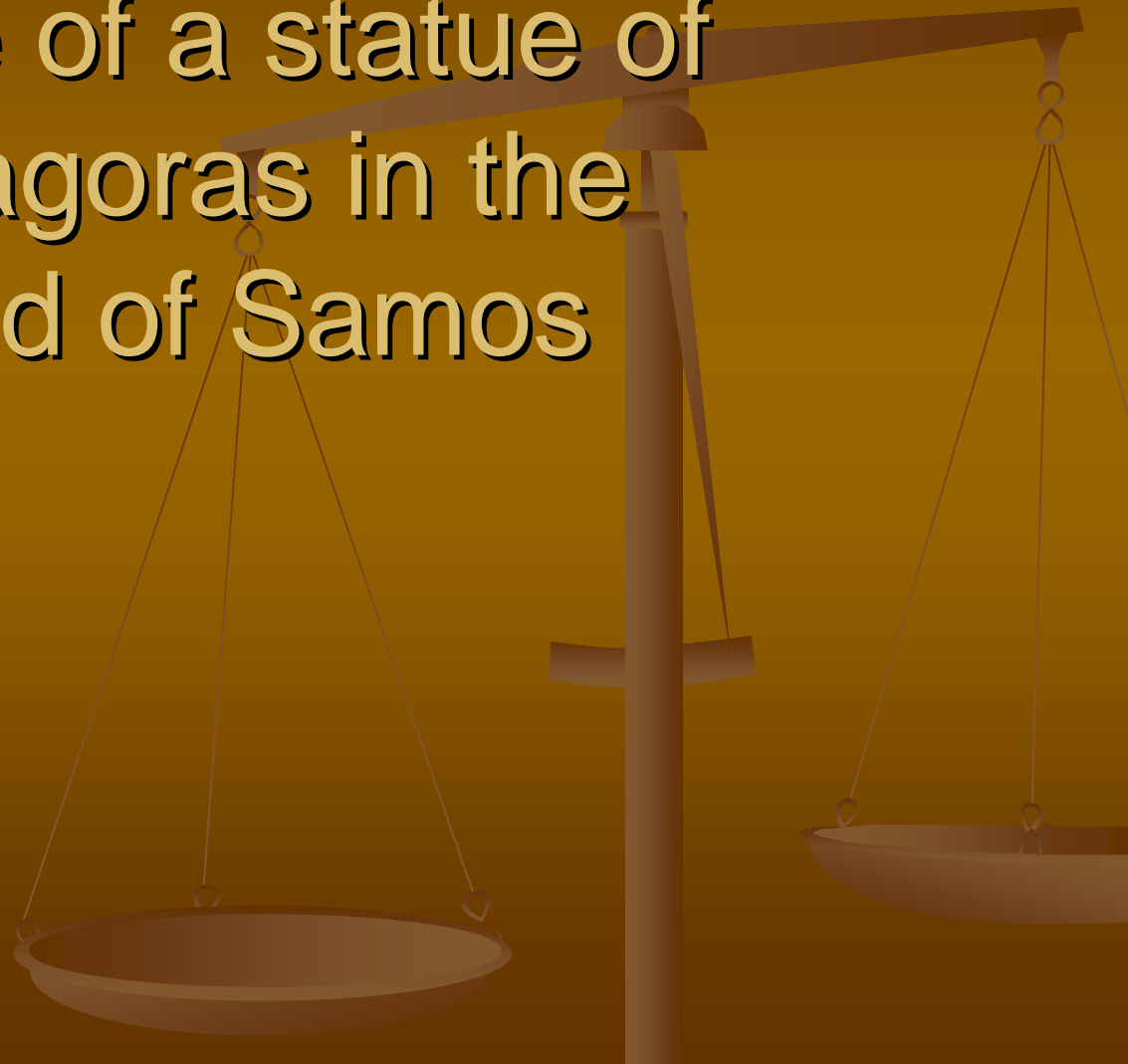








Picture of a statue of
Pythagoras in the
island of Samos

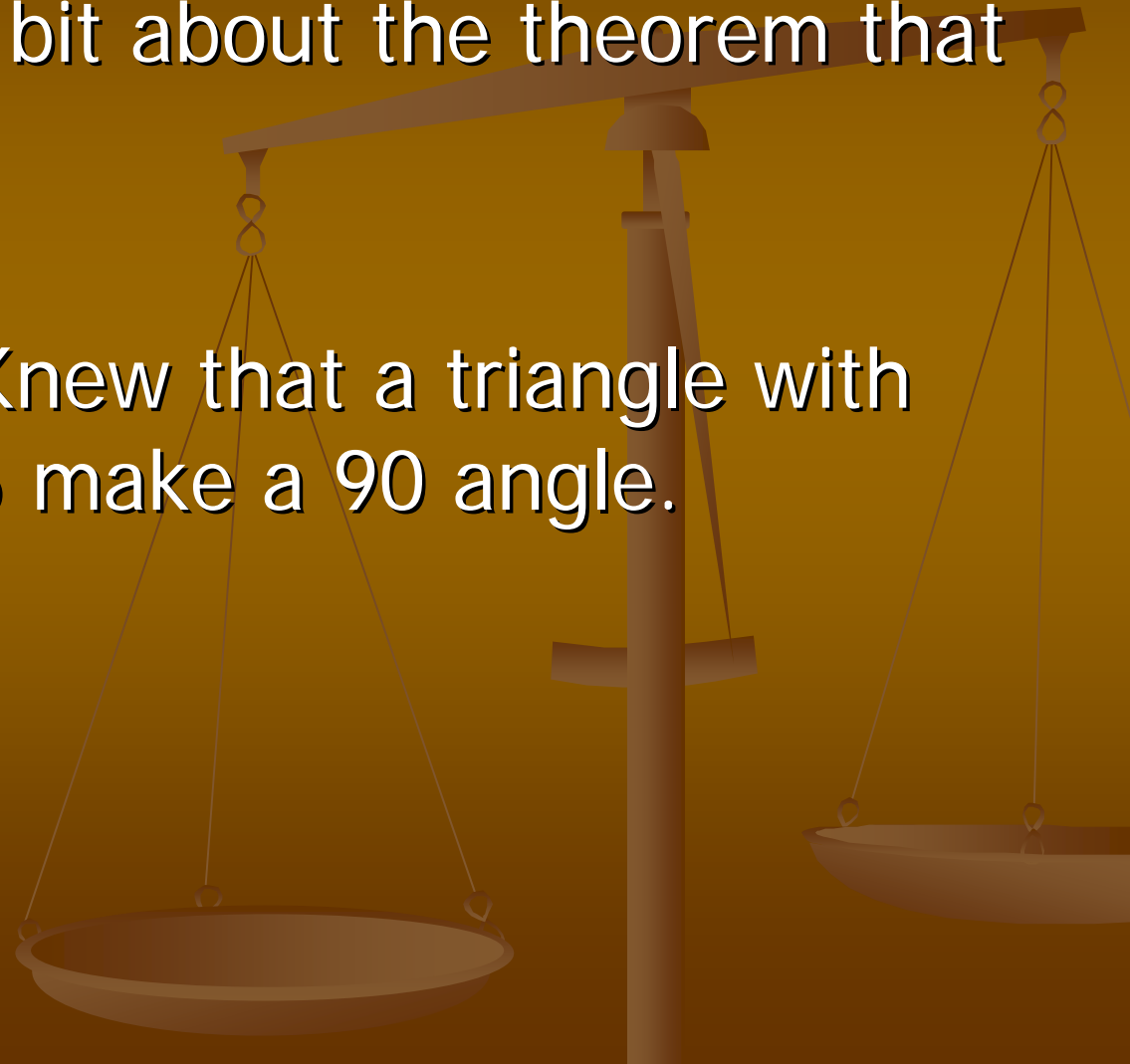




www.samosin.gr Photo by G. Koufas

The theorem

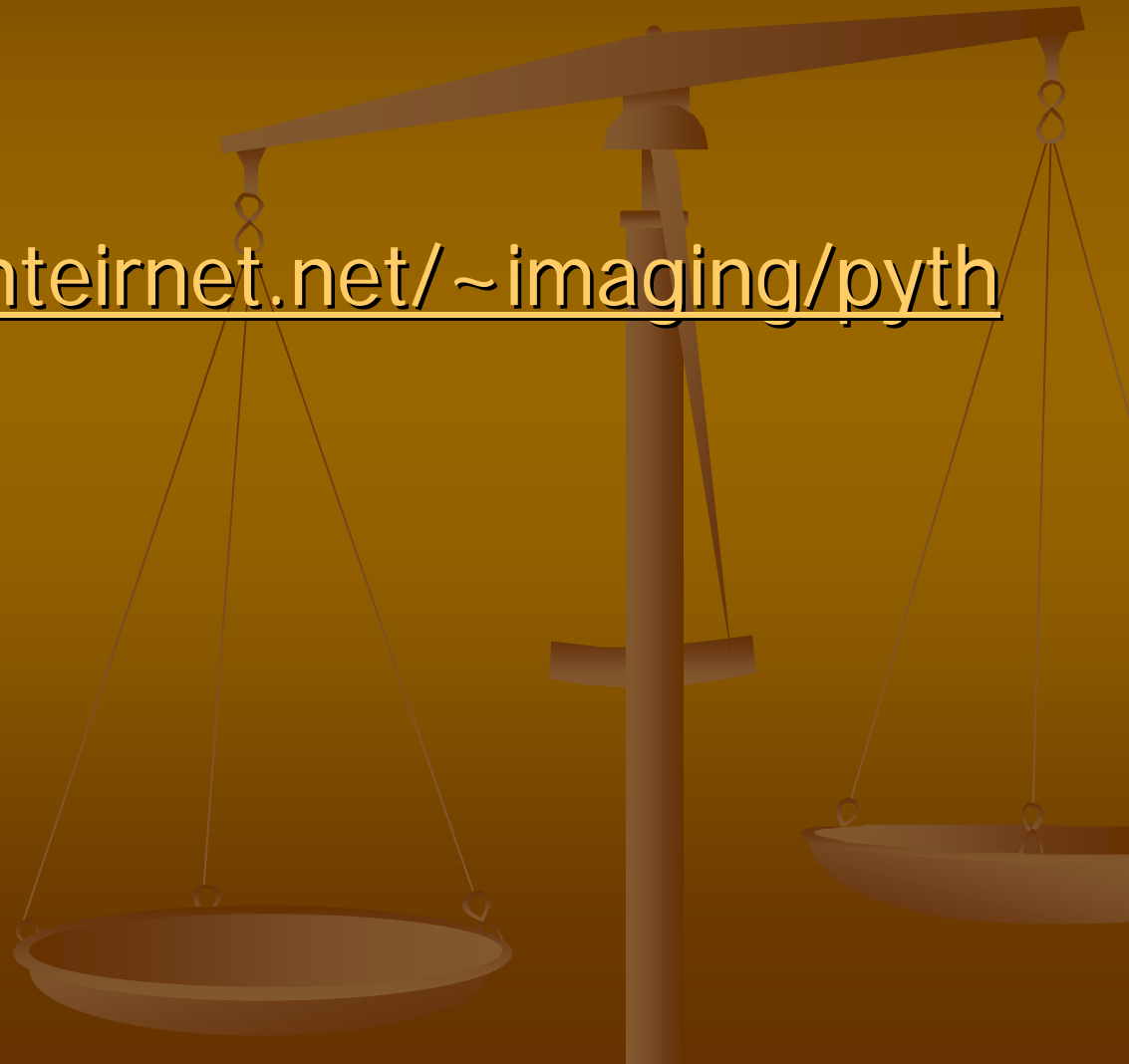
- Now let's talk a bit about the theorem that bears his name.
- The Egyptians Knew that a triangle with sides 3,4, and 5 make a 90 angle.





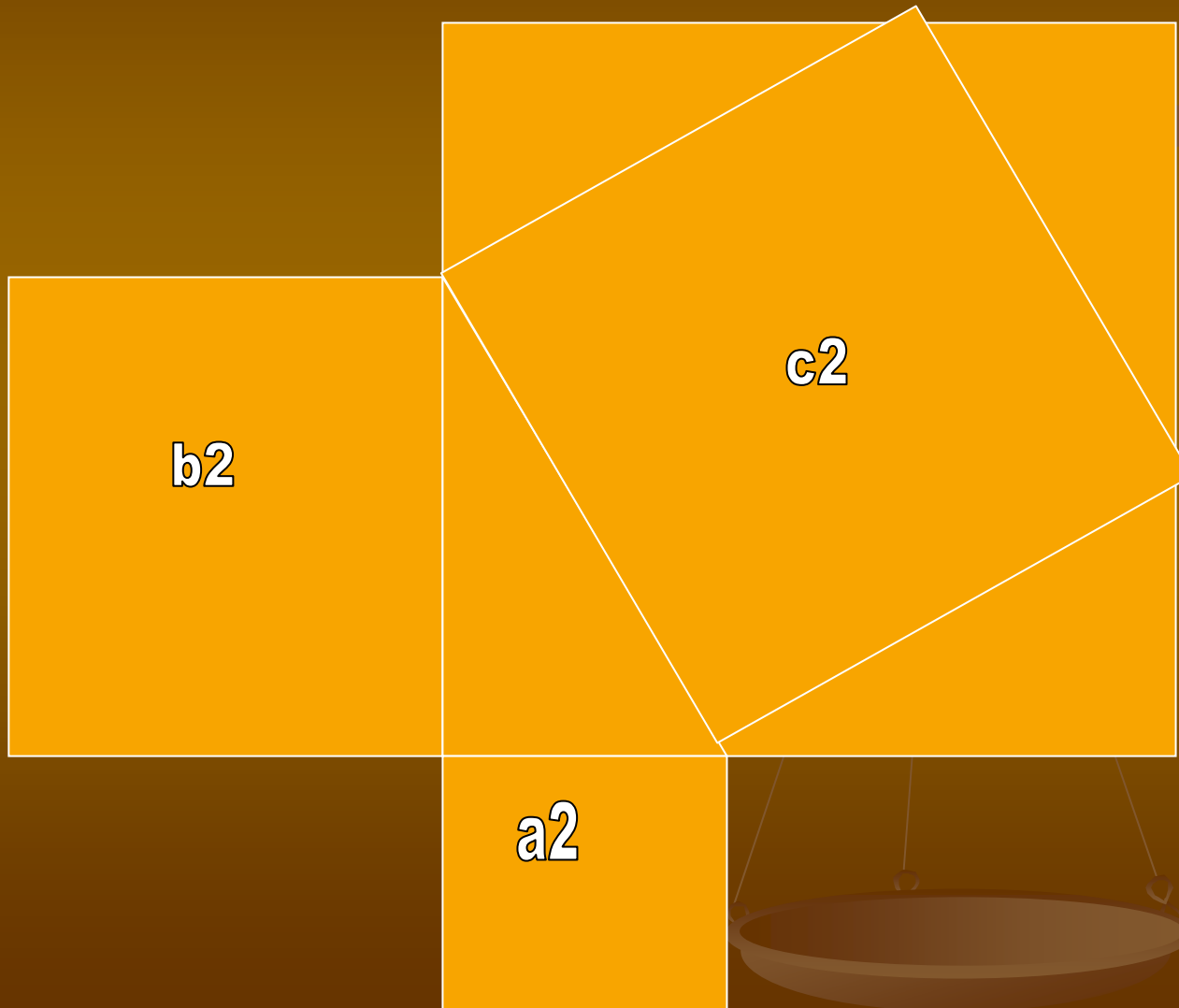
Pythagorean Theorem

- <http://www.fronteirnet.net/~imaging/pythagorean.html>



PYTHAGORAS'S THEOREM

in the right angled triangle the area of the square on the hypotenuse is the sum of the areas of the squares on the other two sides.



HERE ID PROOF

Fit copies of the triangle around c^2 .

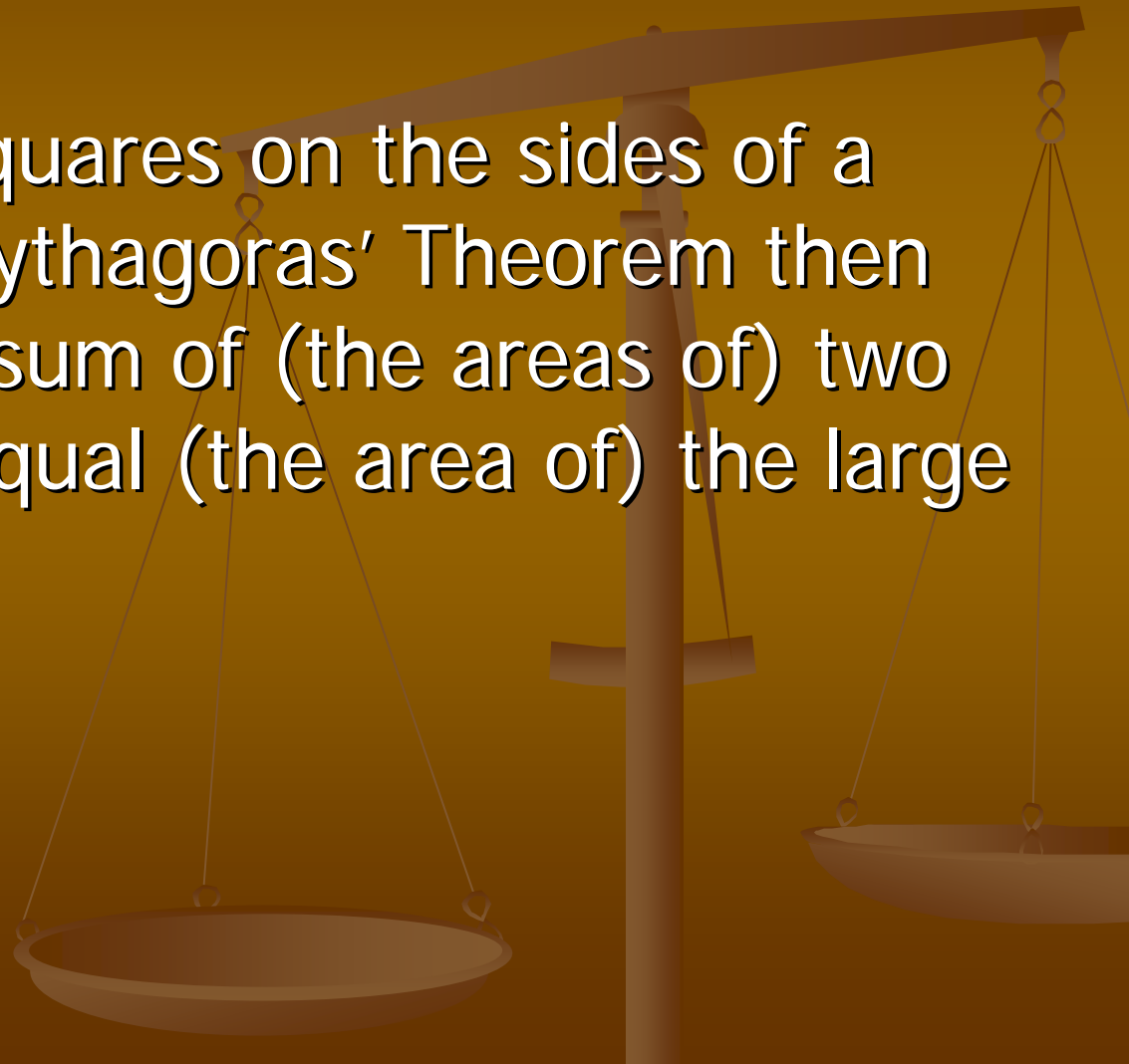
The area of the big square is area $(a+b)^2$

The triangle's area is $ab/2$.

Hence $(a+b)^2 = c^2 + 4(ab/2)$
So $a^2 + 2ab + b^2 = c^2 + 2ab$ and
thus $a^2 + b^2 = c^2$.

Pythagorean Theorem

- Let's build up squares on the sides of a right triangle. Pythagoras' Theorem then claims that the sum of (the areas of) two small squares equal (the area of) the large one.



Pythagorean Theorem

- In algebraic terms,
- $a^2 + b^2 = c^2$
- Where c is the hypotenuse while a and b are the sides of the triangle

