

COMPARISON BETWEEN
POTHAYNAR AND PYTHOGARAS
WORK

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LIFE OF
PYTHOGARAS

- (c. 570 – c. 495 BC) was an ancient Ionian Greek philosopher, polymath and the eponymous founder of Pythagoreanism. His political and religious teachings were well known in Magna Graecia and influenced the philosophies of Plato, Aristotle, and, through them, the West in general. Knowledge of his life is clouded by legend; modern scholars disagree regarding Pythagoras's education and influences, but they do agree that, around 530 BC, he travelled to Croton in southern Italy, where he founded a school in which initiates were sworn to secrecy and lived a communal, ascetic lifestyle.



RESEARCH
MADE BY
PYTHOGARAS

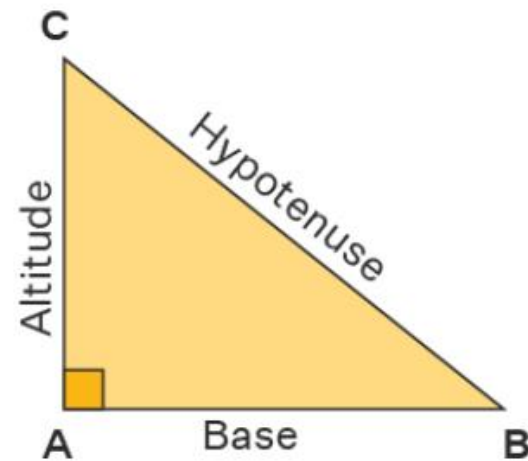
Pythagoras was credited with many mathematical and scientific discoveries:

- Pythagorean theorem
- Pythagorean tuning
- The five regular solids
- The Theory of Proportions
- The sphericity of the Earth

It was said that he was the first man to call himself a philosopher and that he was the first to divide the globe into five climatic zones. Classical historians debate whether Pythagoras made these discoveries, and many of the accomplishments credited to him likely originated earlier or were made by his colleagues or successors.

RIGHT- ANGLED TRIANGLE

Pythagoras theorem states that “In a right-angled triangle, the square of the hypotenuse side is equal to the sum of squares of the other two sides”



$$BC^2 = AB^2 + AC^2$$



LIFE OF
POTHANAYUR

Pothanayur lived around 800 BC i.e 2800 years ago and worked on many solutions to help the construction of dams, temples, and palaces which need measurements of various shapes.



DIFFERENT
APPROACH
OF
POTHANAYUR

Pothanayur had given a quatrain of four lines articulating the method of finding the length of the hypotenuse of a right-angle triangle without the need to find the square or the square-root, only using the length of the sides, and simple fractions.

Here is the quatrain:

Divide the horizontal into eight,
Delete one portion, and add the
remaining, to half of vertical to result
you've got.

The answer would be hypotenuse of the triangle.



ADVANTAGE
OF
POTHANAYU
R QUATRAIN

The advantage of the ancient theorem is that there is no need to use a square / square root function.

Let us take the three sides of the right-angle triangle to be A, B, and C, where C be the hypotenuse.

Let us take A and B to be the horizontal and perpendicular sides respectively.

If we are to divide A into eight parts and takeaway one eight, it would be $7/8A$.

The half of the vertical side will be $1/2B$.

Thus, the result should be :

$$C = 7/8A + 1/2B$$

Let us give some numbers and try :

Firstly Say $A=8$ and $B=6$

By Pythagoras theorem, C equals $\sqrt{8 \times 8 + 6 \times 6}$ Which is $\sqrt{64 + 36} = \sqrt{100} = 10$.

Now, according to the quatrain :

C should be $7/8 A + 1/2 B$

$7/8$ of A (8) = 7 and $1/2$ of B (6) = 3

Together they add up to give hypotenuse to be $7+3=10$

Thank You