Development of Virtual lab :Round 2 (R2)-Storyboard - Template (Worksheet)

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Discipline to which the Lab belongs: Trigonometric Mathematics
Name of the Lab: Engineering Mathematics
Name of experiment: Pythagoras Theorem
(only one Experiment per worksheet)**:**

Kindly Refer these documents before filling the worksheet

1. **Coursework (MOOC) on Pedagogy , Storyboard , Lab Manual : http://bit.ly/Vlabs-MOOC**
2. **Additional Documentation booklet for reference. http://vlabs.iitb.ac.in/vlabs-dev/document.php**
3. **Sample Git Repository. :** https://github.com/Rahulsingh1996/Pythagoras-Theorem

Round 2

1. Story Outline:

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". The sides of this triangles have been named as Perpendicular, Base and Hypotenuse. Here, the hypotenuse is the longest side, as it is opposite to the angle 90°. The sides of a right triangle (say x, y and z) which has positive integer values, when squared are put into an equation, also called a Pythagorean triple.

2. Story:

2.1 Set the Visual Stage Description:

The Pythagorean Theorem was one of the earliest theorems known to ancient civilizations. This famous theorem is named for the Greek mathematician and philosopher, Pythagoras. Pythagoras founded the Pythagorean School of Mathematics in Cortona, a Greek seaport in Southern Italy. He is credited with many contributions to mathematics although some of them may have actually been the work of his students.

2.2 Set User Objectives & Goals:

The Pythagorean Theorem is Pythagoras' most famous mathematical contribution. According to legend, Pythagoras was so happy when he discovered the theorem that he offered a sacrifice of oxen. The later discovery that the square root of 2 is irrational and therefore, cannot be expressed as a ratio of two integers, greatly troubled Pythagoras and his followers. They were devout in their belief that any two lengths were integral multiples of some unit length. Many attempts were made to suppress the knowledge that the square root of 2 is irrational. It is even said that the man who divulged the secret was drowned at sea.

2.4 Set Challenges and Questions/Complexity/Variations in Questions:

Q1. Given that $c^2 = a^2 + b^2$ and a = 8, b = 15, what is the value of c?
Q2. A triangle is said to satisfy the rule $c^2 = a^2 + b^2$ for which special triangle?

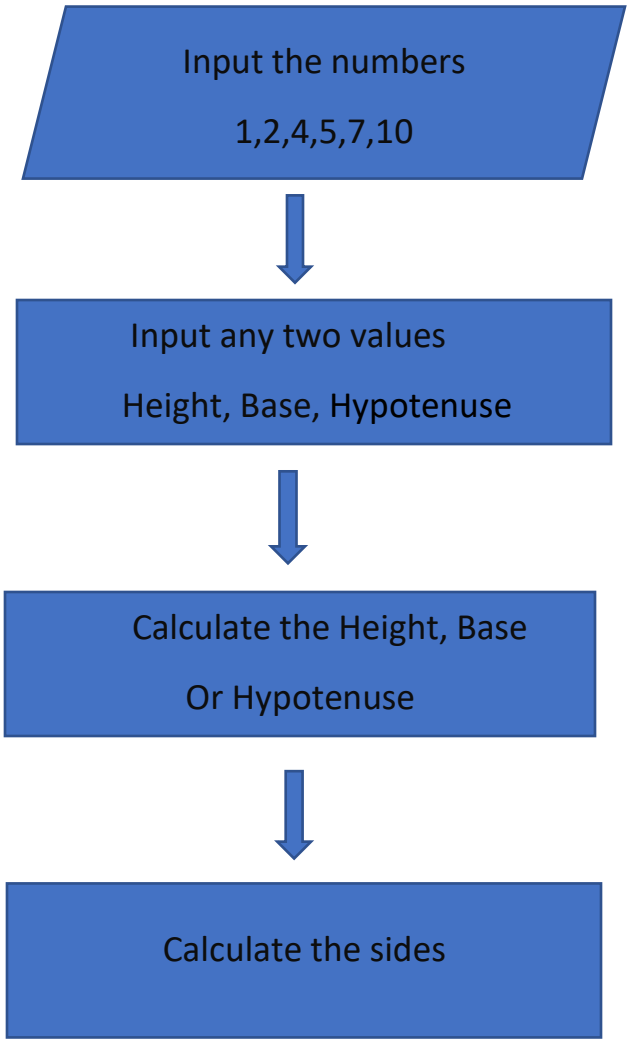
2.6 Conclusion:

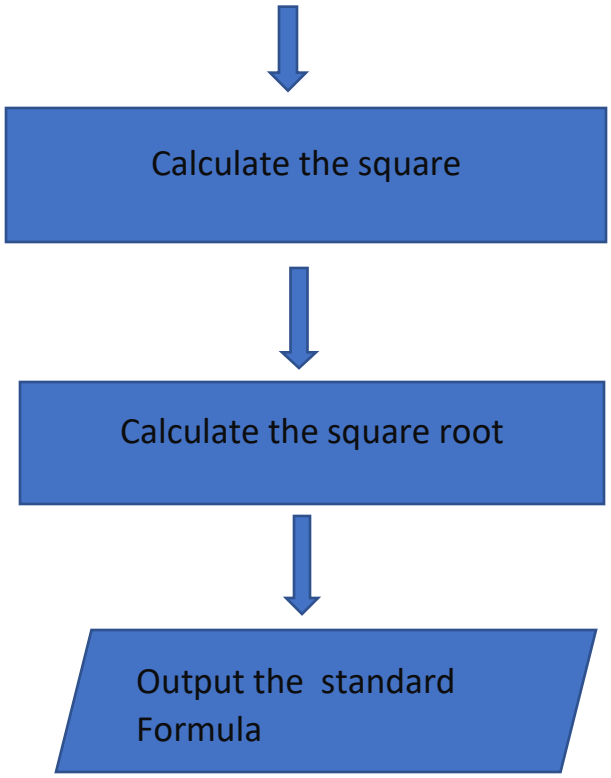
The square ACGF and the four quadrilaterals cut from the square ABIH completely fill the square BCED. Thus the theorem is verified.

2.7 Equations/formulas:

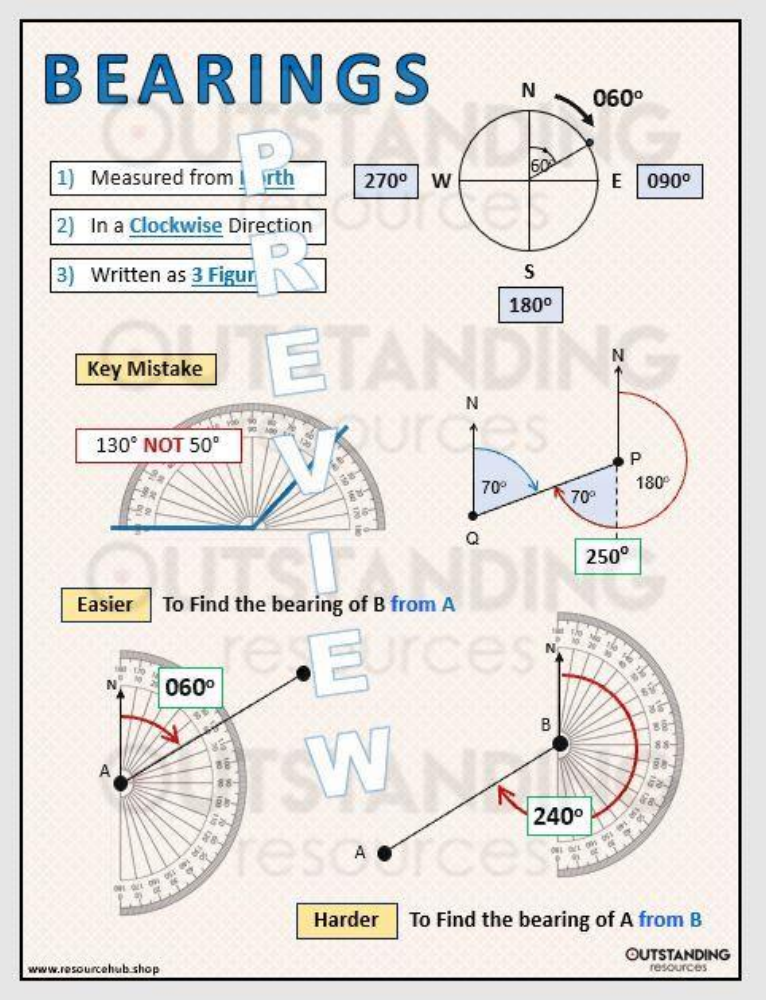
$a^2 = c^2 - b^2$
$b^2 = c^2 - a^2$
$c^2 = a^2 + b^2$

3. Flowchart




Calculate the square
Calculate the square root
Output the standard Formula

5.MIND MAP


BEARINGS
1) Measured from North
2) In a Clockwise Direction
3) Written as 3 Figures
N
060°
60°
270°
W
E
090°
S
180°
Key Mistake
130° NOT 50°
N
70°
70°
P
180°
Q
250°
Easier
To Find the bearing of B from A
N
060°
A
N
B
240°
A
Harder
To Find the bearing of A from B
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PREVIEW