OBJECTIVE: To verify the Pythagoras Theorem by the method of paper cutting and pasting.

STATEMENT: In a right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.

DESIGN AND OR APPROACH TO THE ACTIVITY: 1) Area of a right triangle and a square. 2) Construction of a right angled triangle and a square. 3) The identity \((a+b)^2 = a^2 + 2ab + b^2\).

PROCEDURE: 1) Draw any right \(\triangle ABC\), right-angled at \(C\), on say, a green coloured paper. Let us denote the lengths of sides \(AB\), \(BC\) and \(CA\) by \(c\), \(a\) and \(b\) respectively. (Fig (i)). 2) Construct a square of side \(c\) units on say, a pink coloured paper. (Fig (ii)). Make 4 exact copies of \(\triangle ABC\) (with green coloured paper) and 1 exact replica of the square (with pink coloured paper). 3) Take the above 4 copies of \(\triangle ABC\) and the square and paste them all on a plain sheet of paper to form a square. (Fig (iii)).

\[\text{Fig (i)}\]

\[\text{Fig (ii)}\]

\[\text{Fig (iii)}\] on Page 2.

OBSERVATION: We observe that the side of the square formed is of length \((a+b)\) units. As the square is formed by 4 right triangles and a smaller square, \(\therefore\), The area of big square = Area of pink square + Area of 4 right triangles.

\[\Rightarrow (a+b)^2 = c^2 + 4 \times \frac{1}{2} \times a \times b\]

\[\Rightarrow a^2 + 2ab + b^2 = c^2 + 2ab\]

\[\Rightarrow a^2 + b^2 = c^2\]

Hence Verified
Fig. (iii).