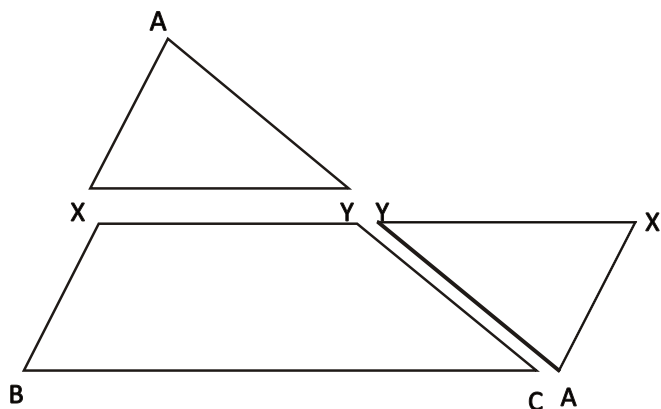


ii) **WORKING:**

As X and Y are mid points of sides AB and AC respectively,

we have $AX = BX$

& $AY = CY$



We can observe that the above quadrilateral forms a parallelogram by using the result “A quadrilateral is a parallelogram if pair of opposite sides are equal and adjacent angles are supplementary”. (can explore other possibilities)

i) CONCLUSION: In a parallelogram of fig(iii) clearly we get that $XY \parallel BC$ and $XY = \frac{1}{2} BC$

Some interesting info:

- ii) Eric Wienstein developed the "Midpoint Theorem".
- iii) Mid point theorem leads us to prove that intercepts made by parallel lines are equal/ proportional



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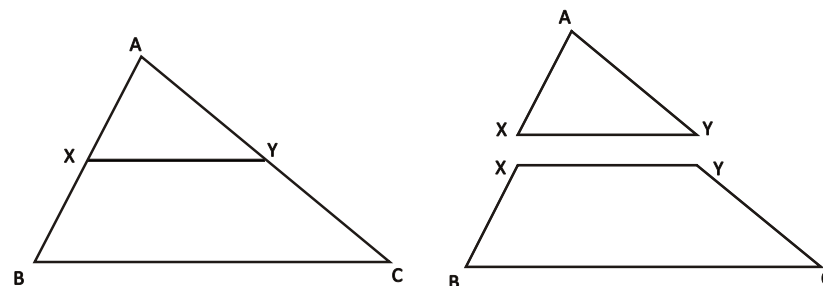
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MID POINT THEOREM

In a Triangle, the line segment joining the mid points of any two sides is parallel to the third side and exactly half of the third side.

Assembly: Consists of a big triangle ABC with X and Y as mid points of AB and AC. Another congruent triangle ABC as two parts. A trapezium BCYX and a triangle AXY.



i) **AIM:**

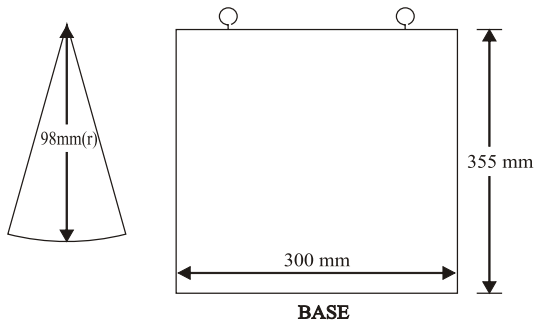
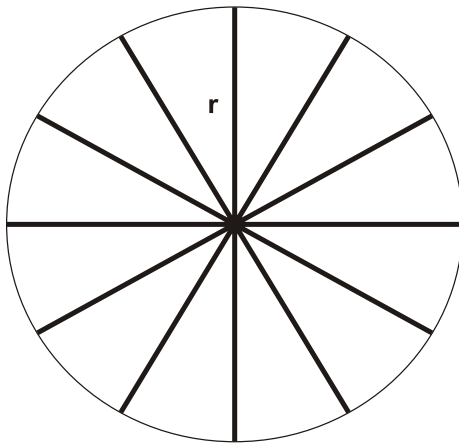
The aim of this experiment is to verify that in any triangle ABC if X and Y are mid points of sides AB and AC then,
 $XY \parallel BC$ & $XY = \frac{1}{2} BC$

AREA OF A CIRCLE

To show that area of a circle of radius 'r' is πr^2

Assembly :

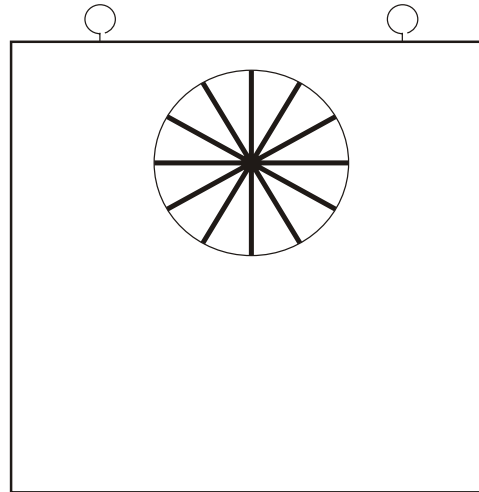
Consists of a circle of radius 98 mm cut out of a 6 mm Eva Rubber. 12 equal segments of radius 98 mm made out of plastic. A base of 355 mm x 300 mm made out of 12 mm Eva Rubber and 40 pins are part of the kit.



To do and observe :

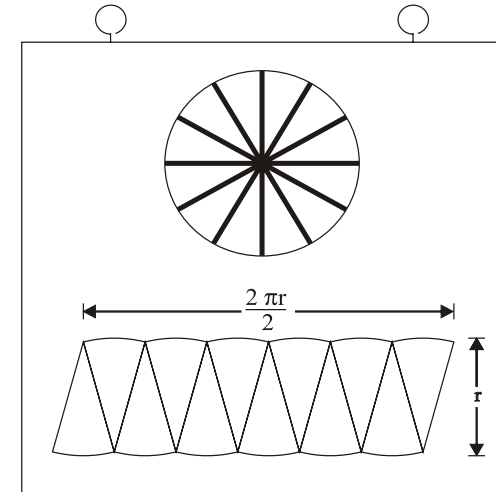
Step 1 :

Take the given circle and fix it on base using pins as shown below.



Step 2 :

Now arrange the 12 segments below the circle as shown below



We get a figure parallelogram.

Therefore area of circle = Area of parallelogram

$$= \text{length} \times \text{breadth}$$

$$= \frac{2\pi r}{2} \times r$$

$$= \pi r^2$$

Result : Area of a circle is πr^2 where 'r' is the radius of the circle

