

Activity 24

OBJECTIVE

To verify that the opposite angles of a cyclic quadrilateral are supplementary.

MATERIAL REQUIRED

Chart paper, geometry box, scissors, sketch pens, adhesive, transparent sheet.

METHOD OF CONSTRUCTION

1. Take a chart paper and draw a circle of radius on it.
2. In the circle, draw a quadrilateral so that all the four vertices of the quadrilateral lie on the circle. Name the angles and colour them as shown in Fig. 1.
3. Make the cut-outs of the angles as shown in Fig. 2.

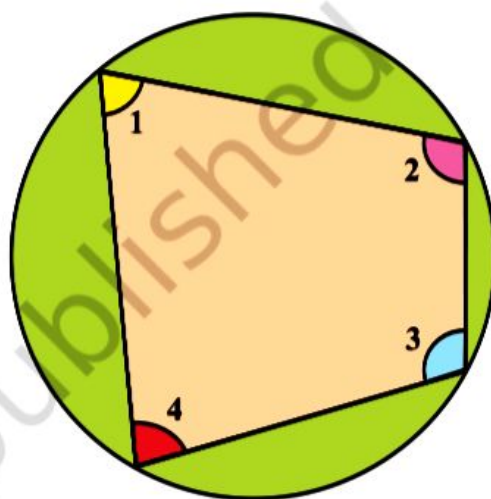


Fig. 1

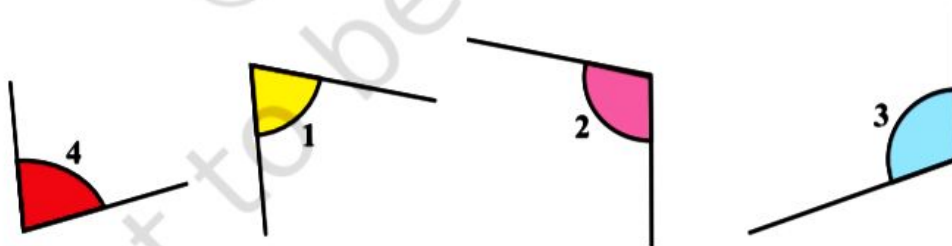


Fig. 2



Fig. 3

DEMONSTRATION

Paste cut-outs of the opposite angles $\angle 1$ and $\angle 3$, $\angle 2$ and $\angle 4$ to make straight angles as shown in Fig. 3. Thus $\angle 1 + \angle 3 = 180^\circ$ and $\angle 2 + \angle 4 = 180^\circ$.

OBSERVATION

On actual measurement:

$\angle 1 = \dots\dots\dots$; $\angle 2 = \dots\dots\dots$; $\angle 3 = \dots\dots\dots$; $\angle 4 = \dots\dots\dots$

So, $\angle 1 + \angle 3 = \dots\dots\dots$; $\angle 2 + \angle 4 = \dots\dots\dots$;

Therefore, sum of each pair of the opposite angles of a cyclic quadrilateral is
 $\dots\dots\dots$

APPLICATION

The concept may be used in solving various problems in geometry.