

CHAPTER 03

CONSTRUCTION OF QUADRILATERALS

Angle sum property of quadrilateral:

Statement:

Sum of the angles of a quadrilateral is 360° .

Given:

ABCD is a quadrilateral AC is one of its diagonals.

To prove:

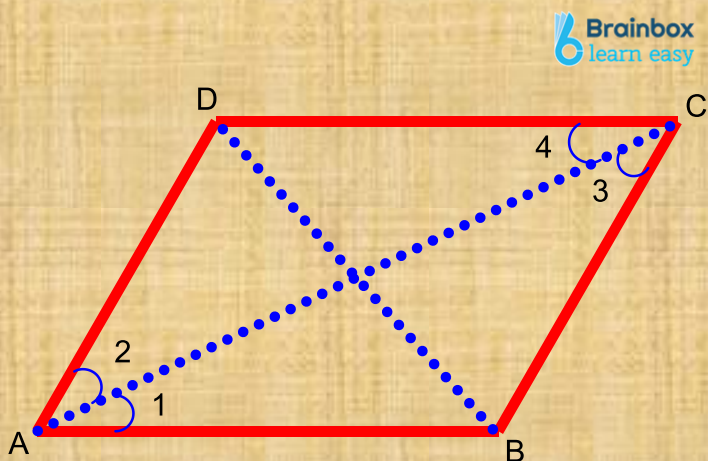
$$\angle A + \angle B + \angle C + \angle D = 360^\circ$$

Proof:

In $\triangle ABC$, we have

$$m\angle 1 + \angle B + m\angle 3 = 180^\circ \dots\dots\dots (1)$$

[Using angle sum property of a triangle]



In $\triangle ADC$, we have

$$m\angle 2 + \angle D + m\angle 4 = 180^\circ \dots\dots\dots (2)$$

[Using angle sum property of a triangle]

Adding (1) & (2), we have

$$m\angle 1 + \angle B + m\angle 3 + m\angle 2 + \angle D + m\angle 4 = 180^\circ + 180^\circ$$

$$\Rightarrow (m\angle 1 + m\angle 2) + \angle B + (m\angle 3 + m\angle 4) + \angle D = 360^\circ$$

$$\Rightarrow \angle A + \angle B + \angle C + \angle D = 360^\circ$$

$\therefore$ Sum of the angles of a quadrilateral is 360° .

