

CHAPTER 06

Lines and Angles

Theorem 1:

Statement:

If two lines intersect each other, then the vertically opposite angles are equal.

Given:

AB and CD are two lines intersecting each other at point O.

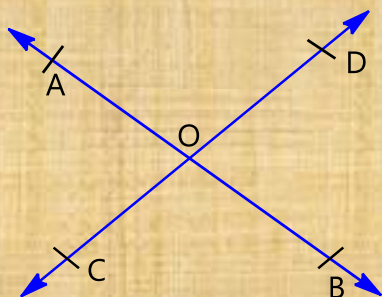
$\angle AOC$ is vertically opposite to $\angle DOB$ and $\angle AOD$ is vertically opposite to $\angle COB$.

To prove:

$$\angle AOC = \angle DOB$$

$$\angle AOD = \angle COB$$

Proof:



$$\angle AOC + \angle AOD = 180^\circ \dots\dots\dots (1) \quad (\because \text{Linear pair})$$

$$\angle AOD + \angle DOB = 180^\circ \dots\dots\dots (2) \quad (\because \text{Linear pair})$$

From (1) & (2), we get $\angle AOC + \angle AOD = \angle AOD + \angle DOB$

$$\Rightarrow \angle AOC = \angle DOB$$

Similarly, $\angle AOD = \angle COB$

