Thu 15/7/2021

EXERCISE 8.1

1. Ratio of angles in the quadrilateral = 3 : 5 : 9 : 13

Let the angles be, $3x$, $5x$, $9x$, $13x$

According to Angle sum property of rectangle :-

$3x + 5x + 9x + 13x = 360^\circ$

$\therefore \Rightarrow 30x = 180^\circ$

$\therefore \Rightarrow x = 9^\circ$

$\therefore$ The angle measures are 27°, 45°, 81°, 117°

2. Let ABCD be a parallelogram such that ~~AC = BD~~ AC = BD

In $\triangle ABC$ & $\triangle DCB$

AC = DB (Given)

AB = DC (Opposite sides of a parallelogram)

BC = CB (Common)

$\therefore \triangle ABC \cong \triangle DCB$ (By SSS Congruency)

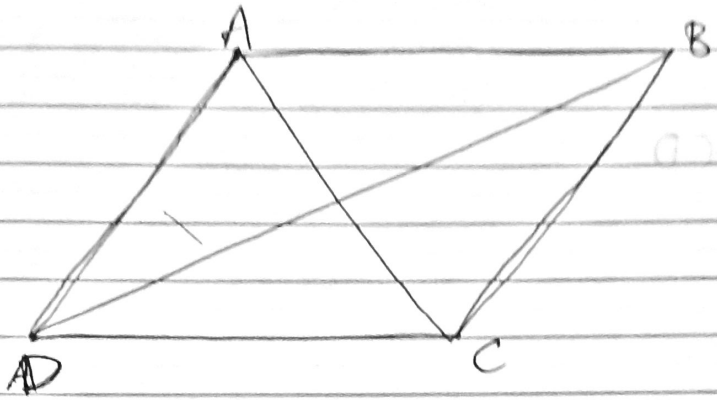
$\Rightarrow \angle ABC = \angle DCB$ (By CPCT) ..... (i)

Now, AB $\parallel$ DC & BC is a transversal [$\because$ ABCD is a parallelogram]

$\therefore \angle ABC + \angle DCB = 180^\circ$ ..... (ii)

(Co-int. angles)

from (i) & (ii), we get
$\angle ABC = \angle DCB = 90^\circ$
which means that ABCD is a parallelogram having an angle equal to 90°.
$\therefore$ ABCD is a rectangle.



Q3. Given,
A ~~quadrilateral~~ quadrilateral, in which the diagonals are perpendicular bisector of each other.

To prove :- Its a Rhombus.

Proof :-

As diagonals are perpendicular bisector of in the quadrilateral, so the angles formed by bisecting of diagonals are equal. (90°)
Lets ~~the~~ take ABCD quadrilateral.

So, AC = BD and intersecting point is E.
$\therefore \angle AED = \angle BEC = \angle AEB = \angle CED$

which means, $DA = CB = AB = DC$

(side opposite to equal angles are equal)

Hence, a quadrilateral with all sides Equal is called a Rhombus.