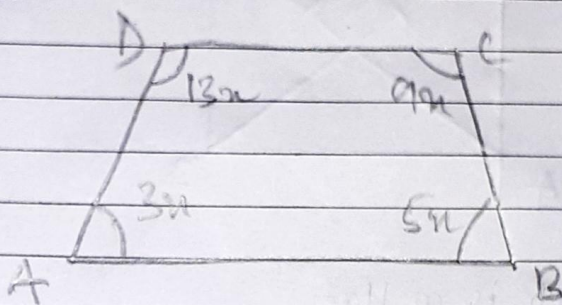


QUADRILATERALSEX. 8.1

1. Ans.



Let the angles be  $3u$ ,  $5u$ ,  $9u$ ,  $13u$ .

$\angle A + \angle B + \angle C + \angle D = 360^\circ$  (angle sum property of

1)  $3u + 5u + 9u + 13u = 360^\circ$  (quadrilaterals)

2)  $30u = 360^\circ$

3)  $u = \frac{360^\circ}{12}$

4)  $u = 12^\circ$

$\angle A = 3u$   
 $= 3 \times 12^\circ$   
 $= \underline{36^\circ}$

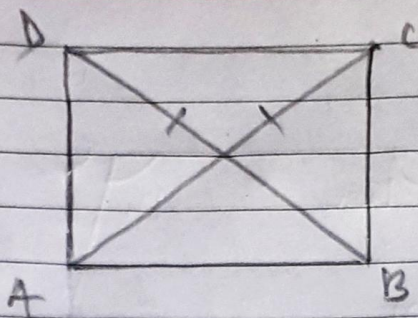
$\angle B = 5u$   
 $= 5 \times 12^\circ$   
 $= \underline{60^\circ}$

$\angle C = 9u$   
 $= 9 \times 12^\circ$   
 $= \underline{108^\circ}$

$\angle D = 13u$   
 $= 13 \times 12^\circ$   
 $= \underline{156^\circ}$



2. Ans.



Given :- ABCD is a ||gm  
 $AC = BD$

To prove :- ABCD is a rectangle

Proof :- In  $\triangle DAB$  &  $\triangle CBA$

$AD = BC$  (opposite sides of ||gm)

$AC = DB$  (given)

$AB = AB$  (common)

$\therefore$

$\therefore \triangle DAB \cong \triangle CBA$  (SSS)

$\angle DAB = \angle ABC$  (CPCT)

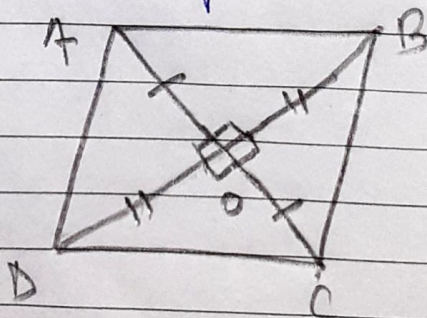
$\angle DAB + \angle ABC = 180^\circ$  (adjacent angles of ||gm)

$$\angle DAB = \angle ABC = \frac{180^\circ}{2} = \underline{90^\circ}$$

$\therefore$  ABCD is a ||gm in which angles are  $90^\circ$ .

$\therefore$  ABCD is a rectangle.

3. Ans.





Given:- ABCD is a quadrilateral  
AC & BD meet at O.

To prove :- ABCD is rhombus

Proof:- In  $\triangle AOB$  &  $\triangle AOD$

$$AO = AO \text{ (common)}$$

$$OB = OD \text{ (O is the midpoint of BD)}$$

$$\angle AOB = \angle AOD \text{ (90}^\circ\text{)}$$

$$\therefore \triangle AOB \cong \triangle AOD \text{ (SAS)}$$

$$AB = AD \text{ (C.P.C.T) — (i)}$$

$$\text{Similarly, } AB = BC \text{ — (ii)}$$

$$BC = CD \text{ — (iii)}$$

$$CD = DA \text{ — (iv)}$$

$\therefore$  From (i) & (ii), (iii), (iv)

$$AB = BC = CD = DA$$

$\therefore$  ~~ABCD is a rhombus~~ ABCD is a rhombus.