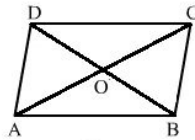




Understanding shapes-III special types of quadrilaterals Ex 17.1 Q1

Answer :

The correct figure is



(i)

$AD = BC$ (opposite sides of a parallelogram are equal)

(ii)

$\angle DCB = \angle BAD$ (opposite angles are equal)

(iii)

$OC = OA$ (diagonals of a parallelogram bisect each other)

(iv)

$\angle DAB + \angle CDA = 180^\circ$ (the sum of two adjacent angles of a parallelogram is 180°)

Understanding shapes-III special types of quadrilaterals Ex 17.1 Q2

Answer :

(i)

Opposite angles of a parallelogram are same.

$\therefore x = z$ and $y = 100^\circ$

Also, $y + z = 180^\circ$ (sum of adjacent angles of a quadrilateral is 180°)

$$z + 100^\circ = 180^\circ$$

$$x = 180^\circ - 100^\circ$$

$$x = 80^\circ$$

$$\therefore x = 80^\circ, y = 100^\circ \text{ and } z = 80^\circ$$

(ii)

Opposite angles of a parallelogram are same.

$$\therefore x = y \text{ and } \angle RQP = 100^\circ$$

$$\angle PSR + \angle SRQ = 180^\circ$$

$$y + 50^\circ = 180^\circ$$

$$x = 180^\circ - 50^\circ$$

$$x = 130^\circ$$

$$\therefore x = 130^\circ, y = 130^\circ$$

Since y and z are alternate angles, $z = 130^\circ$.

(iii)

Sum of all angles in a triangle is 180° .

$$\therefore 30^\circ + 90^\circ + z = 180^\circ$$

$$z = 60^\circ$$

Opposite angles are equal in parallelogram.

$$\therefore y = z = 60^\circ$$

and $x = 30^\circ$ (alternate angles)

(iv) $x = 90^\circ$ (vertically opposite angle)

Sum of all angles in a triangle is 180° .

$$\therefore y + 90^\circ + 30^\circ = 180^\circ$$

$$y = 180^\circ - (90^\circ + 30^\circ) = 60^\circ$$

$$y = z = 60^\circ \text{ (alternate angles)}$$

(v)

Opposite angles are equal in a parallelogram.

$$\therefore y = 80^\circ$$

$$y + x = 180^\circ$$

$$x = 180^\circ - 100^\circ = 80^\circ$$

$$z = y = 80^\circ \text{ (alternate angles)}$$

(vi)

$$y = 112^\circ \text{ (opposite angles are equal in a parallelogram)}$$

In $\triangle UTW$:

$$x + y + 40^\circ = 180^\circ \text{ (angle sum property of a triangle)}$$

$$x = 180^\circ - (112^\circ + 40^\circ) = 28^\circ$$

$$\text{Bottom left vertex} = 180^\circ - 112^\circ = 68^\circ$$

$$\therefore z = x = 28^\circ \text{ (alternate angles)}$$

***** END *****