Understanding shapes-II Quadrilaterals Ex 16.1 Q13

Answer :

Since the sum of all the angles of a quadrilateral is 360°, we have :

$45^\circ + 90^\circ + 90^\circ + \angle MPN = 360^\circ$

$\Rightarrow 225^\circ + \angle MPN = 360^\circ$

$\therefore \angle MPN = 135^\circ$

Understanding shapes-II Quadrilaterals Ex 16.1 Q14

Answer :

The sides of the quadrilateral ABCD are produced in order (according to figure).

Now, we need to find the sum of the exterior angles.

Since the angles made on the same side of straight line are 180°, i.e., linear pair, we have :

$a + x + b + y + c + z + w + d = 180^\circ + 180^\circ + 180^\circ + 180^\circ = 720^\circ$

OR

Sum of the interior angles + sum of exterior the angles $= 180^\circ \times 4 = 720^\circ$

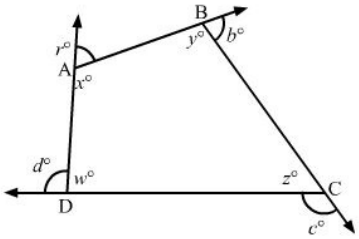
Since the sum of the interior angles of a quadrilateral is 360°, *we have* :

$w + x + y + z = 360^\circ$

Substituing the value, we get :

$a + b + c + d = 360^\circ$

$\therefore$ Sum of the exterior angles $= 360^\circ$



Understanding shapes-II Quadrilaterals Ex 16.1 Q15

Answer :

$$\angle A + \angle B + \angle C + \angle D = 360^\circ$$
$$\Rightarrow \angle A + \angle B + 100^\circ + 50^\circ = 360^\circ$$
$$\Rightarrow \angle A + \angle B = 210^\circ \quad \ldots (i)$$

In $\triangle APB$, we have :

$$\frac{1}{2}\angle A + \frac{1}{2}\angle B + \angle APB = 180^\circ$$
$$\Rightarrow \angle APB = 180^\circ - \frac{1}{2}(\angle A + \angle B)$$

From (i), we get :

$$\Rightarrow \angle APB = 180^\circ - \left(\frac{1}{2} \times 210^\circ\right)$$
$$\therefore \angle APB = 75^\circ$$

********** END **********