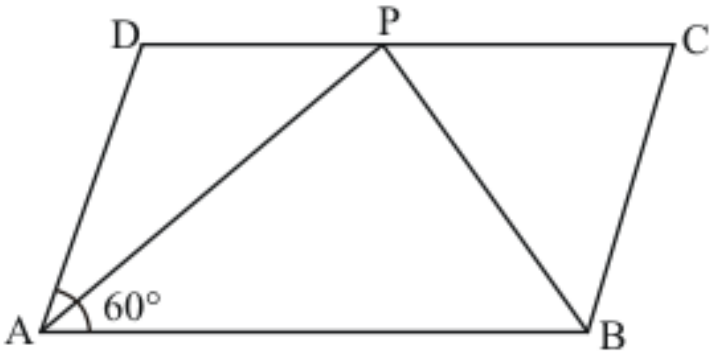
Quadrilaterals Ex 14.2 Q7

Answer :

The figure is given as follows:



It is given that *ABCD* is a parallelogram.

Thus,

$$\angle A + \angle B = 180^0$$

$$60^0 + \angle B = 180^0$$

$$\angle B = 180^0 - 60^0$$

$$\angle B = 120^0$$

Opposite angles of a parallelogram are equal.

Therefore, $\angle D = \angle B$

$$\angle D = 120^0$$

Also, we have *AP* as the bisector of $\angle A$

Therefore,

$\angle DAP = \angle BAP$ ..... (i)

Similarly,

$\angle ABP = \angle PBA$ ..... (ii)

We have $DC \parallel AB$,

$\angle DPA = \angle PAB$

From (i)

$\angle DPA = \angle DAP$

Thus, sides opposite to equal angles are equal.

$\boxed{AD = DP}$

Similarly, $DC \parallel AB$

$\angle CPB = \angle PBA$

From (ii)

$\angle CPB = \angle PBC$

Thus, sides opposite to equal angles are equal.

$\boxed{PC = BC}$

Also,

$DC = DP + PC$

$DC = AD + BC$

$DC = AD + AD$

$\boxed{DC = 2AD}$

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