

# Mathematics

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(Chapter – 6) (Lines and Angles)(Exemplar Problems)

(Class – IX)

## Exercise 6.1

Write the correct answer in each of the following:

### Question 7:

In Fig. 6.3, if  $OP \parallel RS$ ,  $\angle OPQ = 110^\circ$  and  $\angle QRS = 130^\circ$ , then  $\angle PQR$  is equal to  
(A)  $40^\circ$  (B)  $50^\circ$  (C)  $60^\circ$  (D)  $70^\circ$

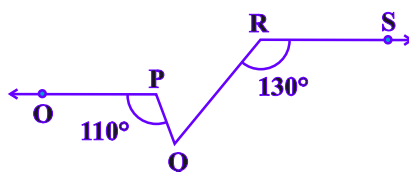
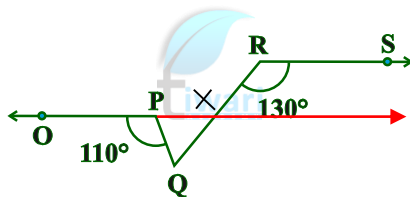


Fig. 6.3

### Answer 7:

(C)  $60^\circ$

Solution:



In the given figure, producing  $OP$ , which intersect  $RQ$  at  $X$ .

Since,  $OP \parallel RS$  and  $RX$  is a transversal.

So,  $\angle RXP = \angle XRS$

$\Rightarrow \angle RXP = 130^\circ$  ... (i) [alternate angles] [∵  $\angle QRS = 130^\circ$ ]

Now,  $RQ$  is a line segment.

So,  $\angle PXQ + \angle RXP = 180^\circ$  [linear pair axiom]

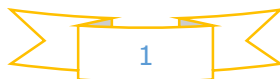
$\Rightarrow \angle PXQ = 180^\circ - \angle RXP = 180^\circ - 130^\circ$

$\Rightarrow \angle PXQ = 50^\circ$  [From equation (i)]

In  $\Delta PQX$ ,  $\angle OPQ$  is an exterior angle

∴  $\angle OPQ = \angle PXQ + \angle PQX$

[∵ exterior angle = sum of two opposite interior angles]



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$$\Rightarrow 110^\circ = 50^\circ + \angle PQX$$

$$\Rightarrow \angle PQX = 110^\circ - 50^\circ$$

$$\therefore \angle PQX = 60^\circ$$

$$[\because \angle PQX = \angle PQR]$$

Hence, the option (C) is correct.

