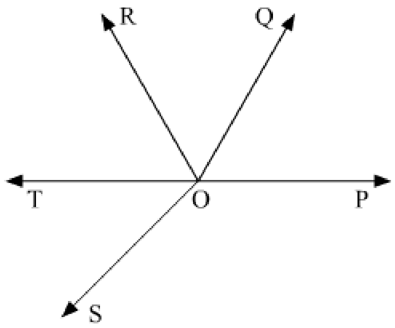
Lines and Angles Ex 8.2 Q16

Answer :

Let us draw TOP as a straight line.



Since, TOP is a line, therefore, $\angle POQ$, $\angle QOR$ and $\angle ROT$ form a linear pair.

Also, $\angle POS$ and $\angle SOT$ form a linear pair.

Thus, we have:

$\angle POQ + \angle QOR + \angle ROT = 180^0$ (i)

And

$\angle POS + \angle SOT = 180^0$ (ii)

On adding (i) and (ii), we get :

Thus, we have:

$\angle POQ + \angle QOR + \angle ROT = 180^0$ (i)

And

$\angle POS + \angle SOT = 180^0$ (ii)

On adding (i) and (ii), we get :

$$(\angle POQ + \angle QOR + \angle ROT) + (\angle POS + \angle SOT) = 180^0 + 180^0$$

$$\angle POQ + \angle QOR + (\angle ROT + \angle SOT) + \angle POS = 360^0$$

$$\boxed{\angle POQ + \angle QOR + \angle SOR + \angle POS = 360^0}$$

Hence proved.

Lines and Angles Ex 8.2 Q17

Answer :

In the figure given below, we have

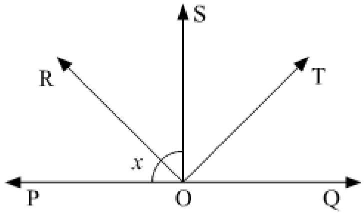
Ray OR as the bisector of $\angle POS$

Therefore,

$\angle POR = \angle ROS$

Or,

$\angle POS = 2\angle ROS$ (I)



Similarly, Ray OT as the bisector of $\angle SOQ$

Therefore,

$\angle TOQ = \angle TOS$

Or,

$\angle QOS = 2\angle TOS$ (II)

Also, Ray OS stand on a line POQ. Therefore, $\angle POS$ and $\angle QOS$ form a linear pair.

Thus,

$$\angle POS + \angle QOS = 180^0$$

From (I) and (II):

$$2\angle ROS + 2\angle TOS = 180^0$$

$$2(\angle ROS + \angle TOS) = 180^0$$

$$\angle ROS + \angle TOS = \frac{180^0}{2}$$

$$\angle ROT = \boxed{90^0}$$

$$\angle ROT = \boxed{90^0}$$

Hence, the value of $\angle ROT$ is 90°.

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