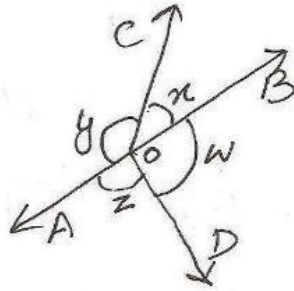


Class IX

Ch. Lines and Angles

Ex 6.1

④



to prove AOB is a line  
proof

$$x + y + z + w = 360^\circ \quad \left[ \begin{array}{l} \text{Sum of angles} \\ \text{around a} \\ \text{point} \end{array} \right]$$

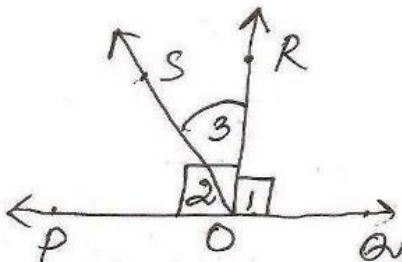
$$x + y + x + y = 360^\circ \quad [\because x = w \text{ and } y = z]$$

$$\Rightarrow 2(x + y) = 360$$

$$\Rightarrow x + y = \frac{360}{2} = 180^\circ$$

$\therefore$  AOB is a line  
[linear pair axiom]

⑤



To prove

$$\angle ROS = \frac{1}{2} (\angle QOS - \angle POS)$$

Proof  $\angle QOS = \angle 1 + \angle 3 \dots \text{①}$

$\angle 2 = \angle 3 + \angle POS \dots \text{②}$

⑩ + ⑪

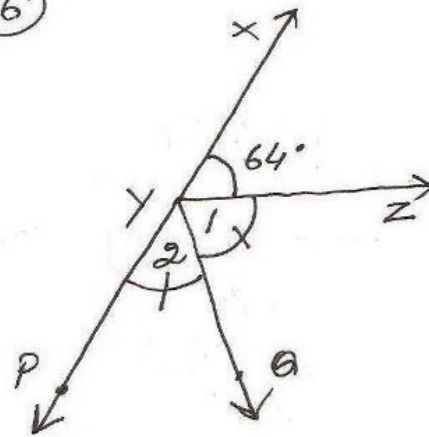
$$\angle QOS + \angle 2 = \angle 1 + \angle 3 + \angle 3 + \angle POS$$

$$[\because \angle 1 = \angle 2 = 90^\circ]$$

$$\Rightarrow 2\angle 3 = \angle QOS - \angle POS$$

$$\Rightarrow \angle ROS = \frac{1}{2} (\angle QOS - \angle POS)$$

⑥



to find  $\angle XYP$ ,  
reflex  $\angle XYP$

Sol

$$\angle PYZ + \angle XYZ = 180^\circ$$

[linear pair axiom]

$$64^\circ + \angle 1 + \angle 2 = 180^\circ$$

$$\angle 1 + \angle 1 = 180^\circ - 64^\circ$$

$$[\because \angle 1 = \angle 2]$$

$$\Rightarrow 2\angle 1 = 116$$

$$\Rightarrow \angle 1 = \frac{116}{2} = 58^\circ$$

$$\angle XYP = \angle XYZ + \angle 1$$

$$= 64^\circ + 58^\circ$$

$$= 122^\circ$$

$$\text{reflex } \angle XYP = 360^\circ - 122^\circ$$

$$= 238^\circ$$