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# CLASS – 9

# MATHEMATICS

## Chapter – 6

## Lines and Angles

### Part – 3

### Exercise 6.1 (1 to 3)

Vikas Sir

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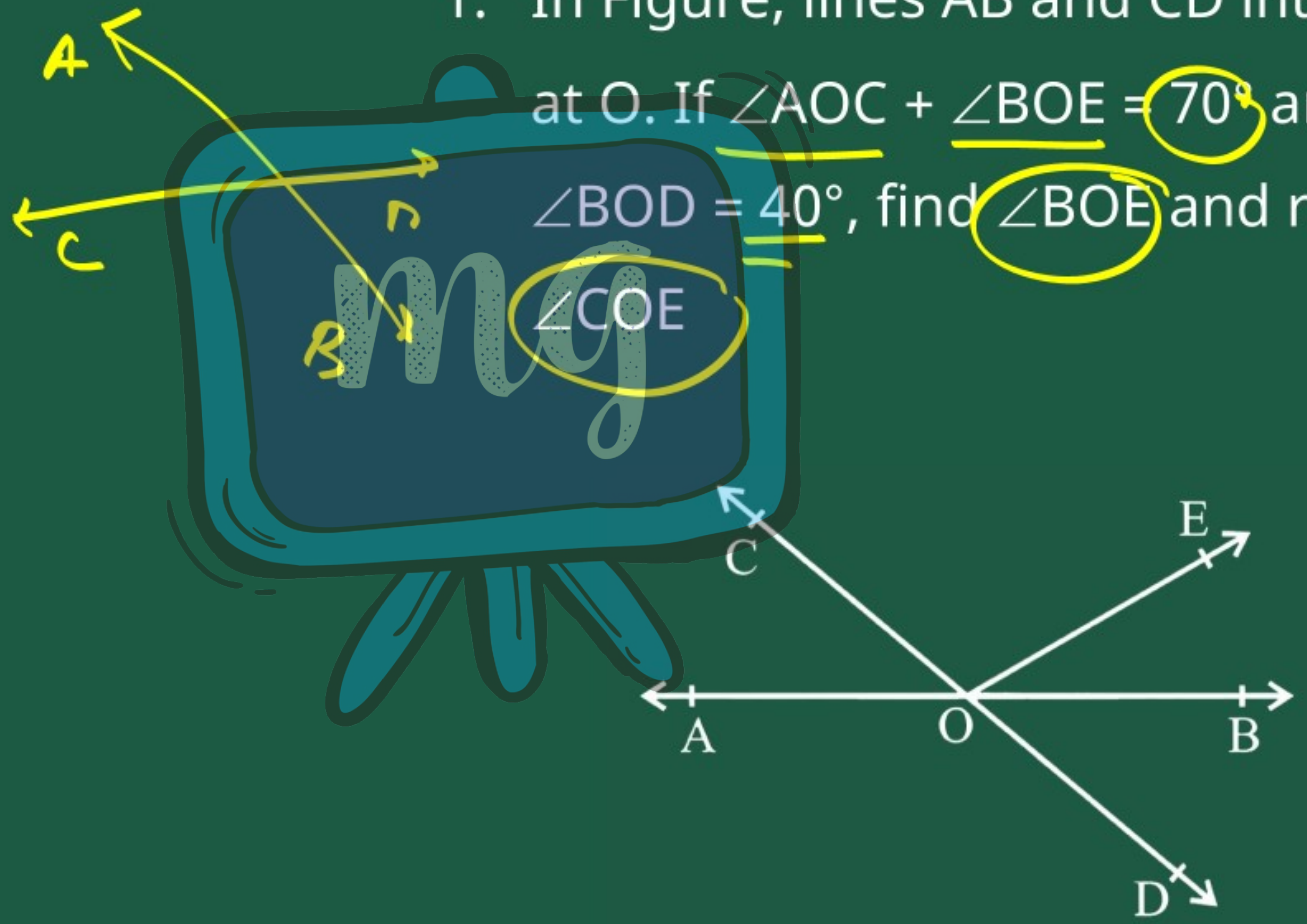
1. In Figure, lines AB and CD intersect at O. If ∠AOC + ∠BOE = 70° and ∠BOD = 40°, find ∠BOE and reflex ∠COE



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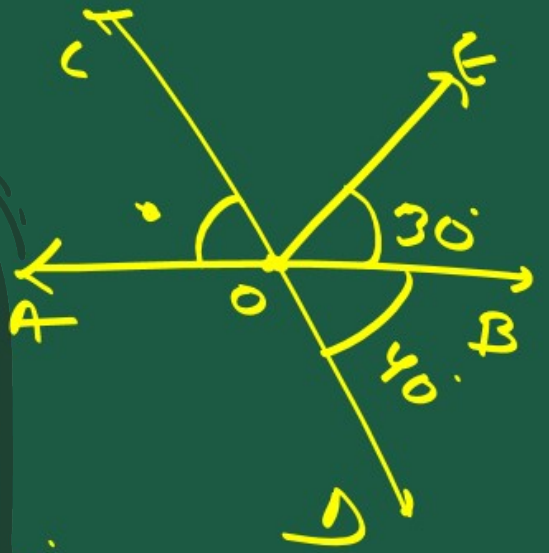
Given:→ AB & CD are two St. line intersect at O.




S.t

$\angle BOD = 40°$

$\angle AOC + \angle BOE = 70°$

To find = $\angle BOE$

& Reflex $\angle COE$

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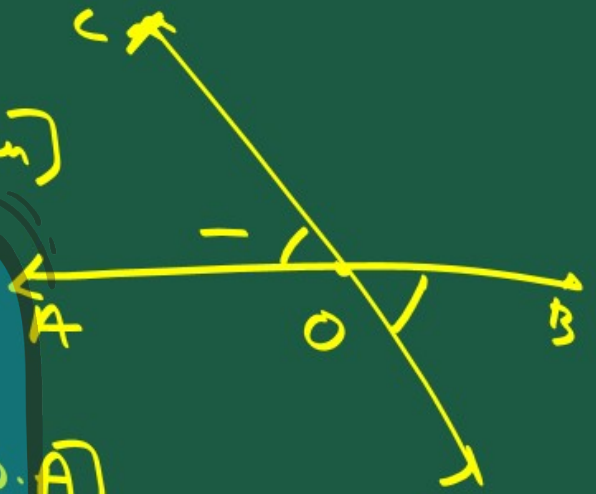
Sol$^{n}$ :-1

$\angle AOC + \angle BOE = 70^\circ$ [Given]




Given AB & CD lines

Intersect at O

$\angle AOC = \angle BOD$ [V.O.A]

$\angle AOC = \angle BOD = 40^\circ$

$\therefore \angle AOC + \angle BOE = 70^\circ$

$40^\circ + \angle BOE = 70^\circ$

$\rightarrow \angle BOE = 70^\circ - 40^\circ$

$= 30^\circ$

$\angle AOC = \angle BOD$ (V.O.A)

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Since OE is Ray on St AOB

$\angle AOE + \angle BOE = 180^\circ$ [L.P]

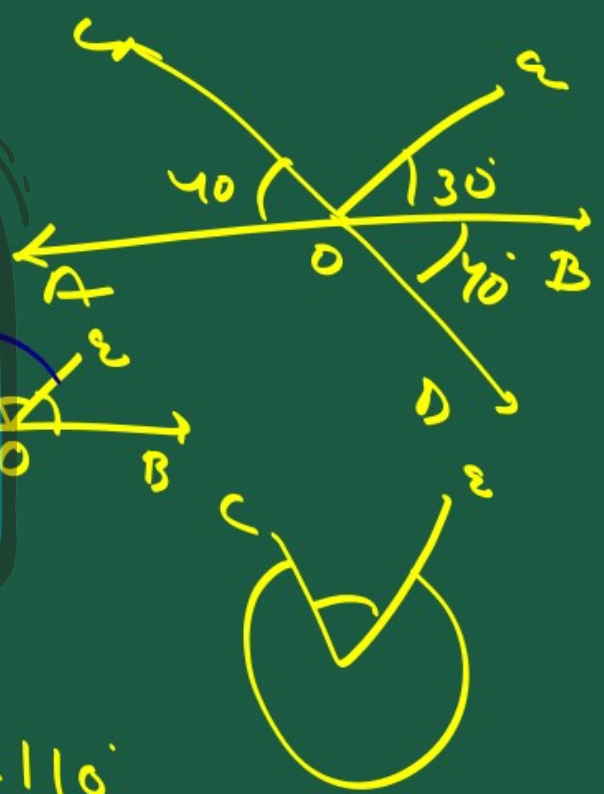
$\angle AOC + \angle COE + \angle BOE = 180^\circ$

$40^\circ + \angle COE + 30^\circ = 180^\circ$

$\angle COE + 70^\circ = 180^\circ$

$\angle COE = 180^\circ - 70^\circ = 110^\circ$

$\angle COE = 110^\circ$



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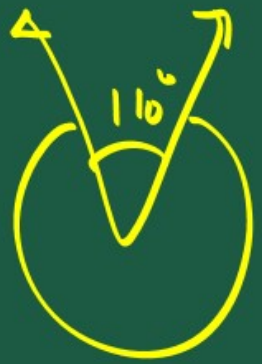
$\angle COE = 110^\circ$




Reflex $\angle COE = 360^\circ - \angle COE$

$= 360^\circ - 110^\circ$

$= 250^\circ$

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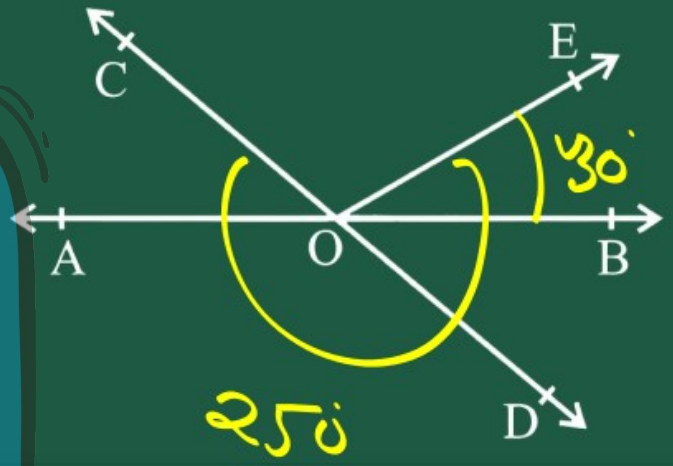

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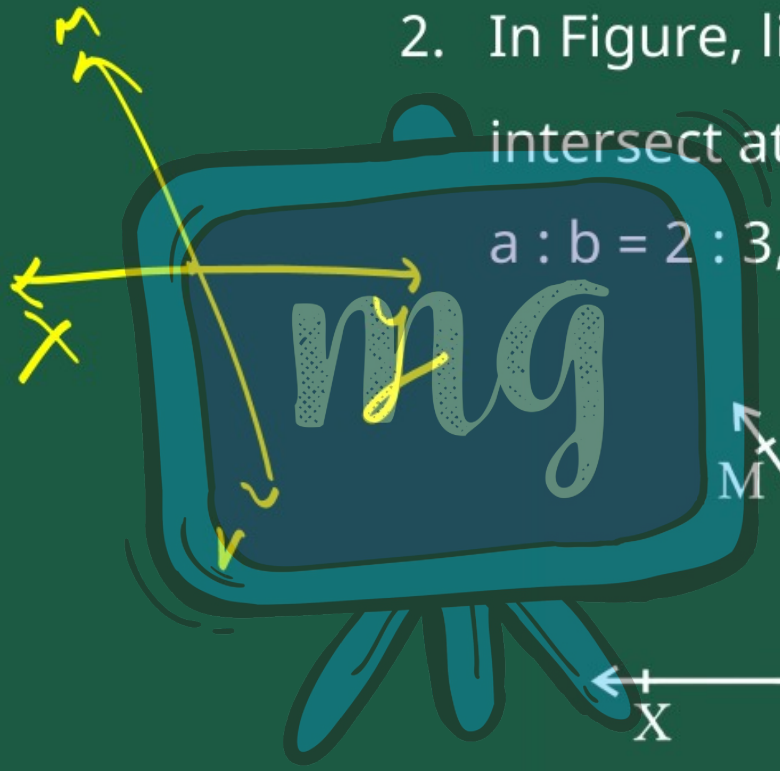
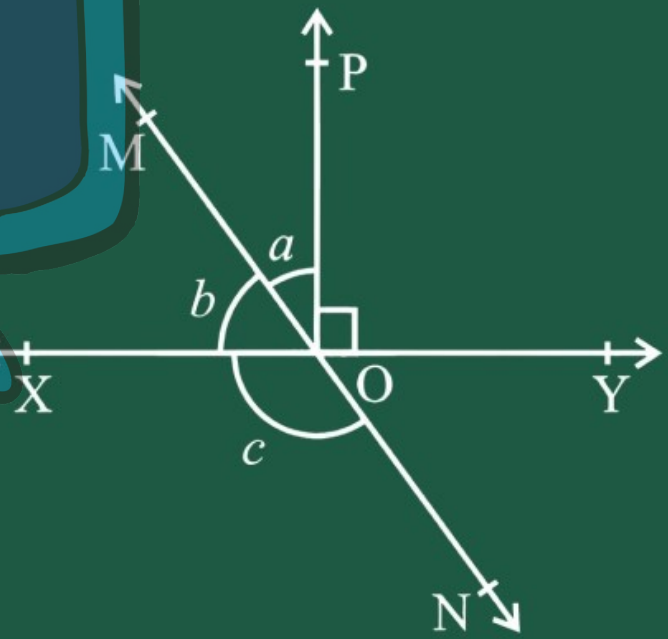
2. In Figure, lines XY and MN intersect at O. If ∠POY = 90° and a : b = 2 : 3, find c.





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Given :→ XY & MN are two st.lines that intersect with each other at O.

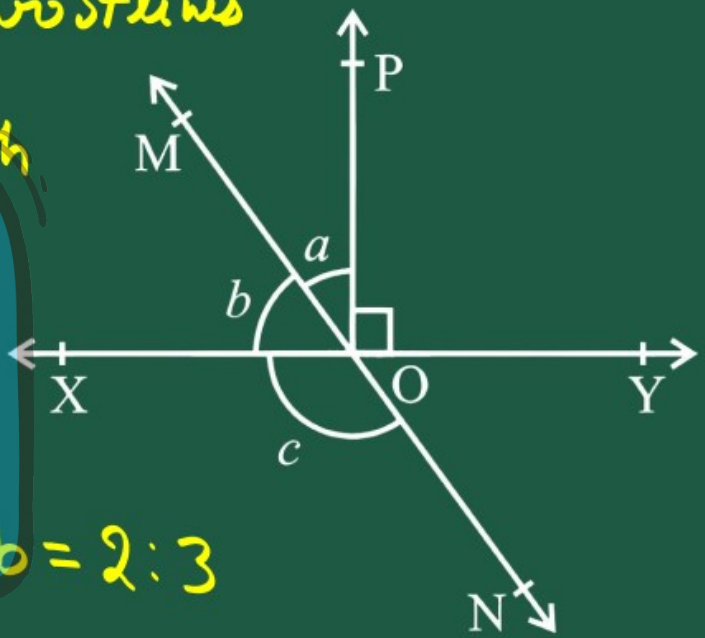
St. $\angle POY = 90°$

$\angle POM = a$

$\angle MOX = b$

$\angle XON = c$

$a : b = 2 : 3$



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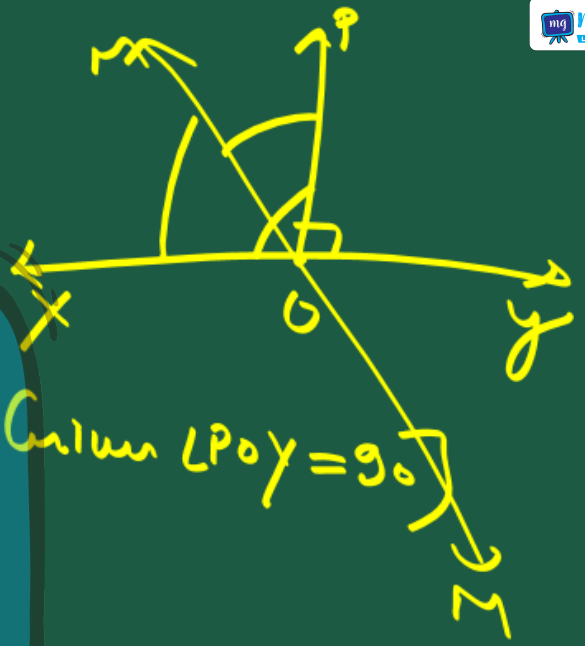
OP is Ray on 1st line XOY




$\angle POX + \angle POY = 180^\circ$

$\angle POX + 90^\circ = 180^\circ$ [ Given $\angle POY = 90^\circ$

$\angle POX = 180^\circ - 90^\circ$

$\angle POX = 90^\circ$

OM is Ray btw $\angle POX$

$\angle POX = \angle POM + \angle MOX$

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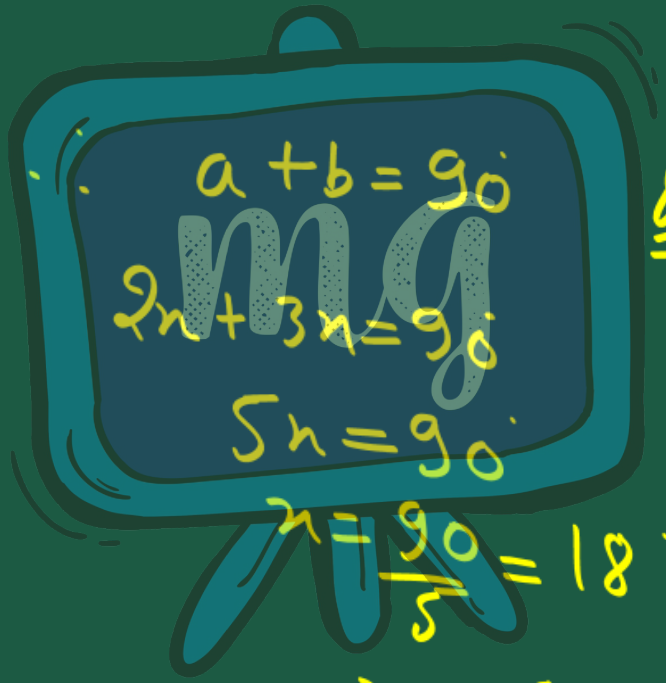
$\angle POX = \angle POM + \angle MOX$

$90^\circ = a + b$




$\equiv$

$a : b = 2 : 3$

$a = 2 \times n = 2n$

$b = 3 \times n = 3n$ (Ans)

$n = 18^\circ$

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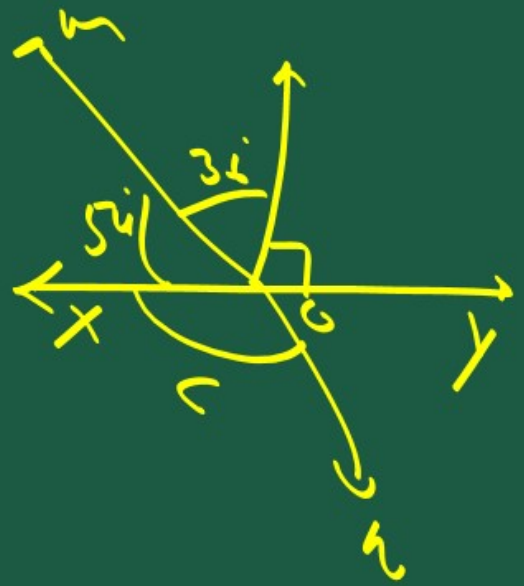
$a = 2x = 2 \times x = 2 \times 18^\circ = 36^\circ$

$b = 3x = 3 \times x = 3 \times 18^\circ = 54^\circ$



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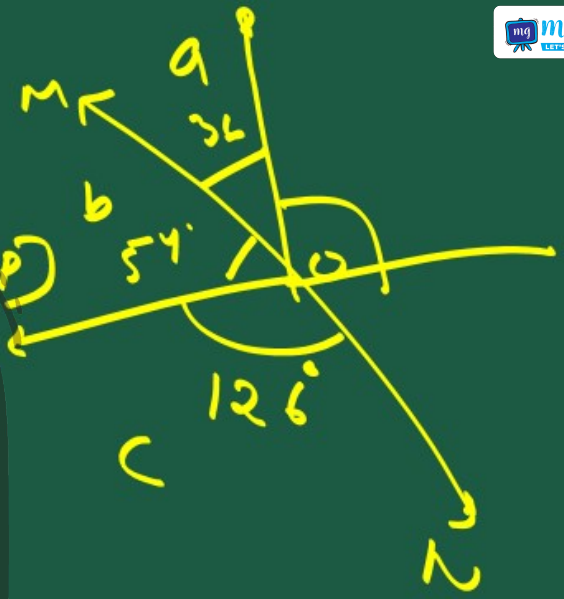
OX is Ray on St lin MON




$\angle MOX + \angle XON = 180^\circ$ [L.P]

$\angle b + \angle C = 180$

$54^\circ + \angle C = 180^\circ$

$\angle C = 180 - 54$

$C = 126^\circ$

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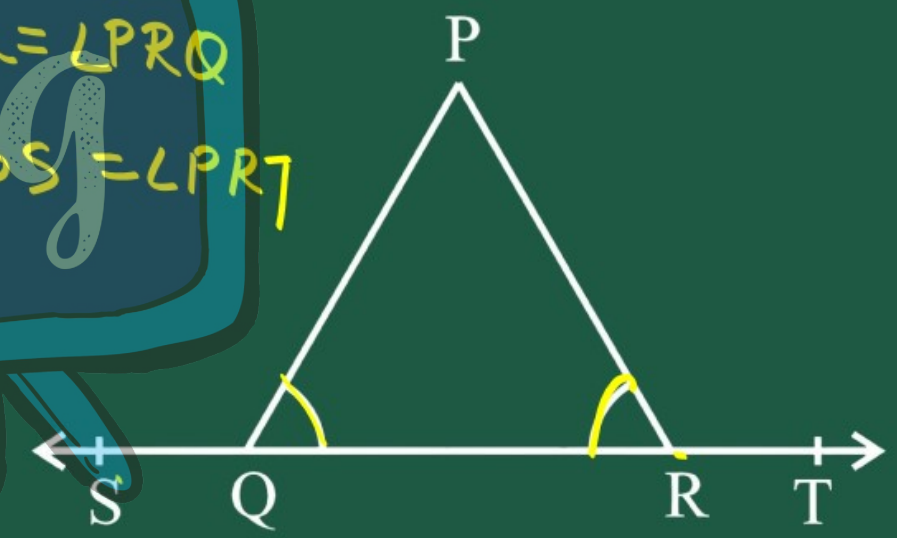
3. In Figure, $\angle PQR = \angle PRQ$, then prove that $\angle PQS = \angle PRT$.

Given: $\angle PQR = \angle PRQ$

To prove: $\angle PQS = \angle PRT$



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QP line segment on ST line SQT

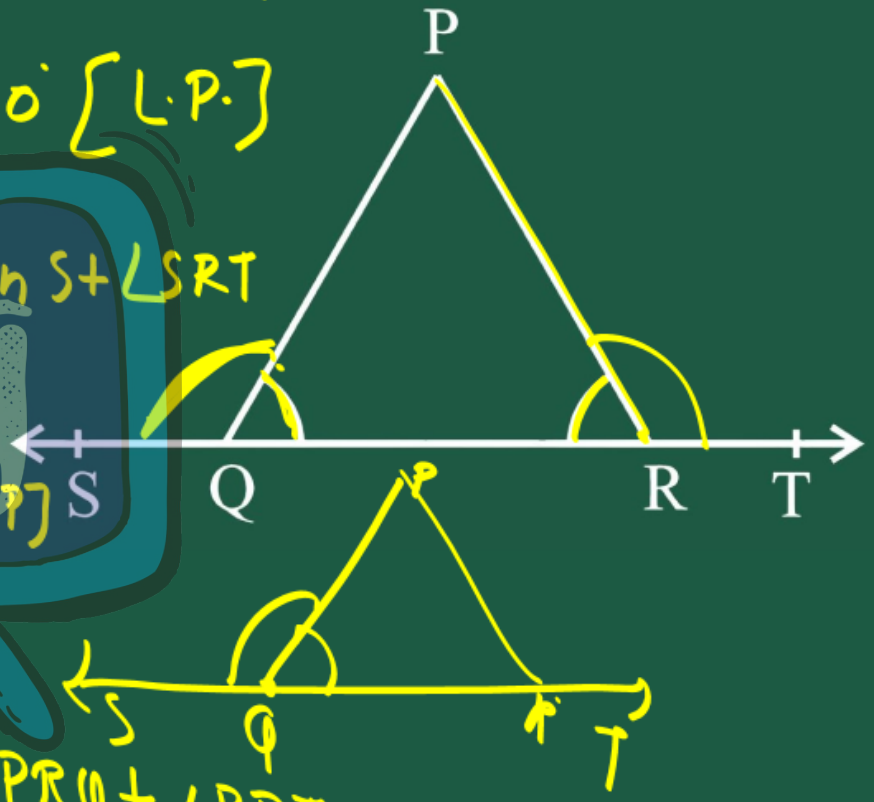
$\angle PQS + \angle PQR = 180^\circ$ [L.P.] —(1)

11y RP line segment on ST $\angle SRT$

$\angle PRQ + \angle PRT = 180^\circ$ [L.P.]

From eq (1) & (2)

$\angle PQS + \angle PQR = \angle PRQ + \angle PRT$



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$\angle PQS + \angle PQR = \angle PRQ + \angle PRT$

$\angle PQR = \angle PRQ$ [Given]

$\angle PQS + \angle PQR = \angle PQR + \angle PRT$

$\angle PQS = \angle PRT$

Hence Proved