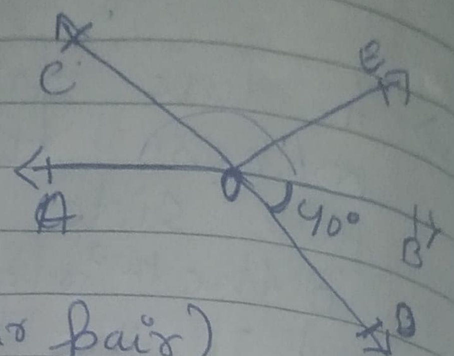
13/5/21 Ch-6 - LINES AND ANGLES

Exercise 6.1

HW

1) In figure. 6.13, lines AB and CD intersect at O. If $\angle AOC + \angle BOE = 70°$ and $\angle BOD = 40°$, find $\angle BOE$ and reflex $\angle COE$.



In line AB,

$\Rightarrow \angle AOC + \angle COE + \angle BOE = 180°$ (Linear pair)

$\angle AOC + \angle BOE + \angle COE = 180°$

$70° + \angle COE = 180°$

$\angle COE = 180° - 70° = 110°$

In line CD,

$\angle COE + \angle BOE + \angle BOD = 180°$ (Linear pair)

$110° + \angle BOE + 40° = 180°$

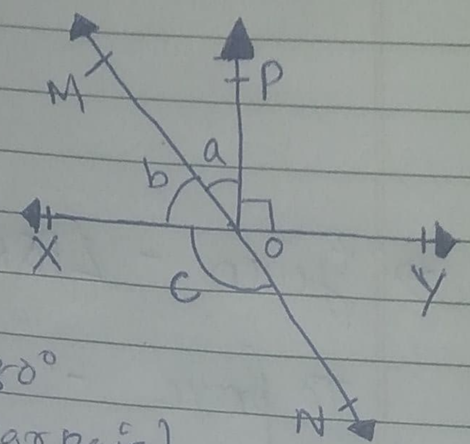
$\angle BOE + 150° = 180°$

$\angle BOE = 180° - 150° = 30°$

$\angle COE = 110°$

$\angle BOE = 30°$

2) In fig. 6.14, lines XY and MN intersect at O. If $\angle POY = 90^\circ$ and $a : b = 2 : 3$, find c.



→ In line xy,

$\angle XOM + \angle POM + \angle POY = 180^\circ$ (linear pair)

$3x + 2x + 90^\circ = 180^\circ$

$5x + 90^\circ = 180^\circ$

$5x = 180^\circ - 90^\circ$

$x = \frac{90^\circ}{5} = 18$

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

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

$54^\circ + 36^\circ + 90^\circ = 180^\circ$

In line MN,

$\angle b + \angle c = 180^\circ$

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

$\Rightarrow \angle c = 180^\circ - 54^\circ$

$\angle c = 126^\circ$

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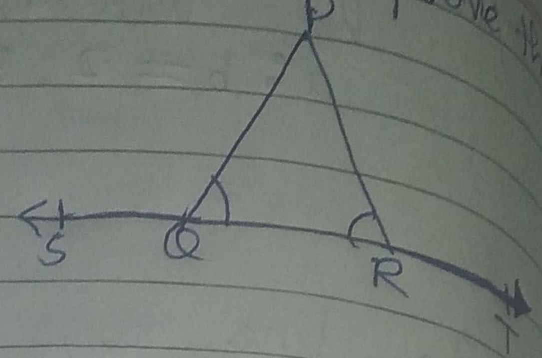
Exercise 6.1

3) In fig. 6.15, $\angle PQR = \angle PRQ$, then prove that $\angle PQS = \angle PRT$.



⇒ Given -: $\angle PQR = \angle PRQ$

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

Proof -: $\angle PQR = \angle PRQ = x$ (Let)

$\angle PQS = 180 - x$ (Linear pair) — (1)

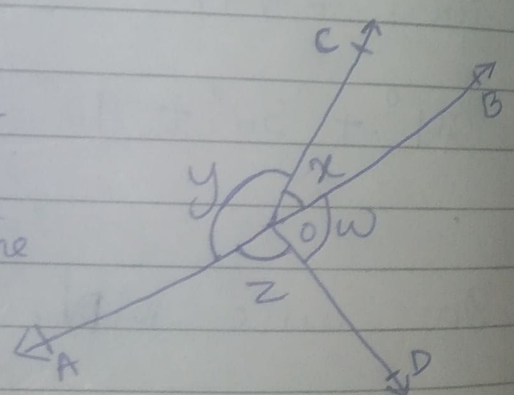
$\angle PRT = 180 - x$ (Linear pair) — (2)

$\angle PQS = \angle PRT$ (proved).

4) In Fig. 6.16, if $x + y = w + z$, then prove that AOB is a line.

⇒ Given = $x + y = w + z$

To Prove → AOB is a line



Proof -: $x + y = 180°$

$x + y + w + z = 360°$

$x+y = w+z$

$(x+y) + (x+y) = 360^\circ$

$2(x+y) = 360^\circ$

$x+y = 180^\circ$ ②

$x+y = AOB$

AOB = Straight line (Hence proved)