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

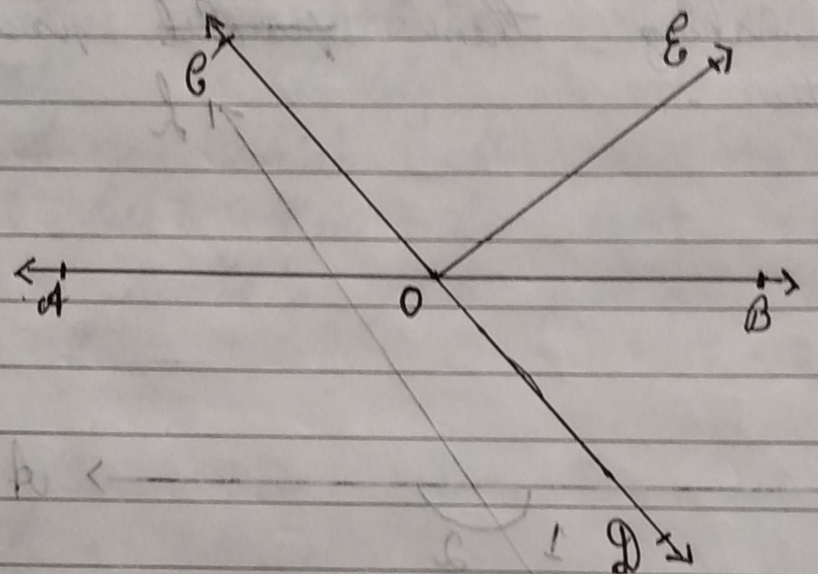

Fig. 6.13

ans) From the diagram, we have

$(\angle AOC + \angle BOE + \angle COE)$ and $(\angle COE + \angle BOD + \angle BOE)$ forms a straight line.

So, $\angle AOC + \angle BOE + \angle COE = \angle COE + \angle BOD + \angle BOE = 180°$

Now, by putting the values of $\angle AOC + \angle BOE = 70°$ and $\angle BOD = 40°$ we get

$\angle COE = 110°$ and $\angle BOE = 30°$

So, reflex $\angle COE = 360° - 110° = 250°$

2) In Fig. 6.14, lines XY and MN ~~intersects~~ intersect at O. If POY = 90° and ~~a : b = 2~~ a : b = 2 : 3 find c.

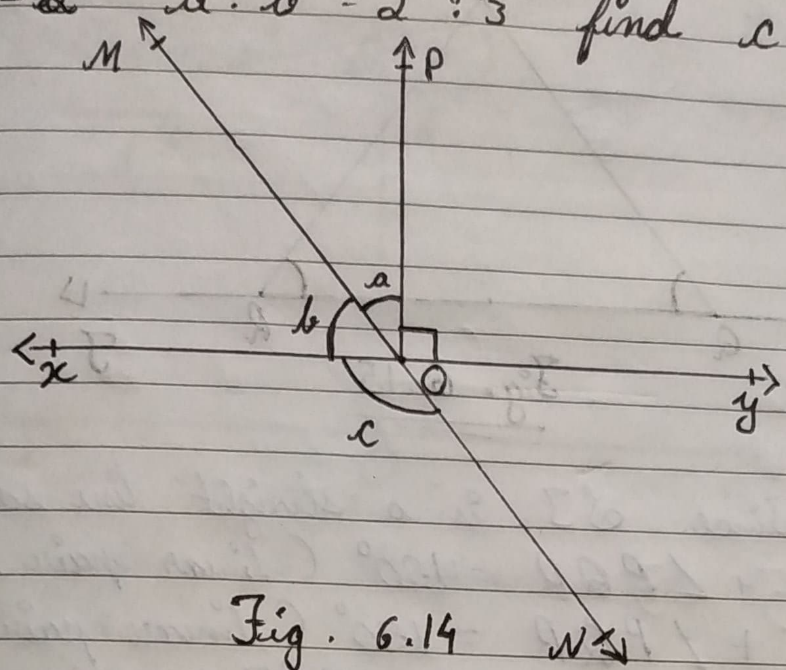

Fig. 6.14

ans) We know that the ~~sum~~ sum of linear pair are always ~~eq~~ equal to 180°

So,

$POY + a + b = 180°$

Putting the value of POY = 90° (given) we get,

$a + b = 90°$

Now, it is given that $a : b = 2 : 3$ so,

Let a be $2x$ and b be $3x$

$\therefore 2x + 3x = 90$

Solving this equation we get,

$x = 18$

$\therefore 2x = 36°$ and $3x = 54°$

From the diagram, b + c also forms a straight angle ~~so~~,

$b + c = 180°$

$54° + c = 180°$

$c = 126°$

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

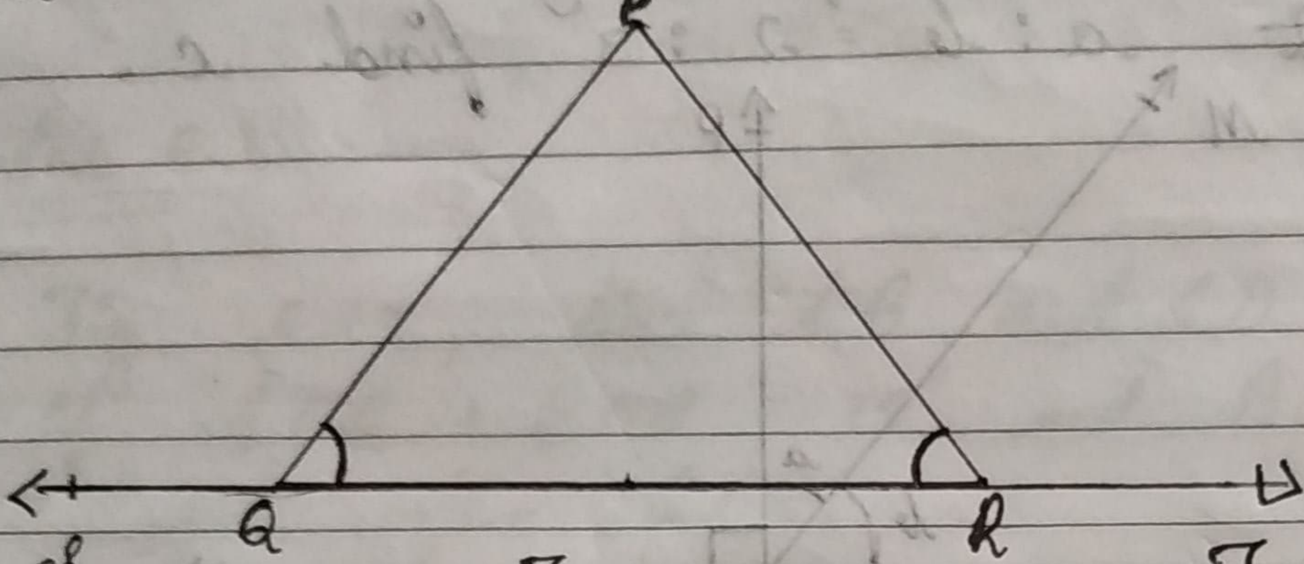

Fig. 6.15

ans) ~~Sue~~ Since ST is a straight line so,

$\angle PQS + \angle PQR = 180^\circ$ (linear pair)

$\angle PRT + \angle PQR = 180^\circ$ (linear pair)

Now, $\angle PQS + \angle PQR = \angle PRT + \angle PRQ = 180^\circ$

Since $\angle PQR = \angle PRQ$ (as given in the question)

$\angle PQS = \angle PRT$. (Hence Proved)