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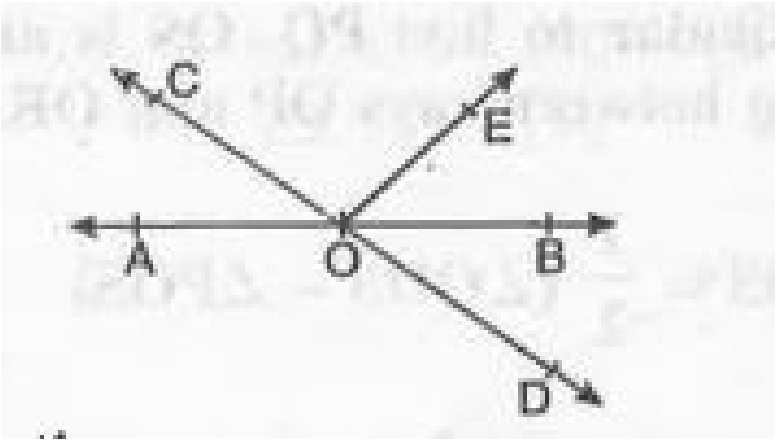
MATHS

BOOKS - PSEB

LINES AND ANGLES

Exercise

1. In Fig.



, lines AB and CD intersect at O. If $\angle AOC + \angle BOE = 70^\circ$ and $\angle BOD = 40^\circ$, find $\angle BOE$ and reflex $\angle COE$.

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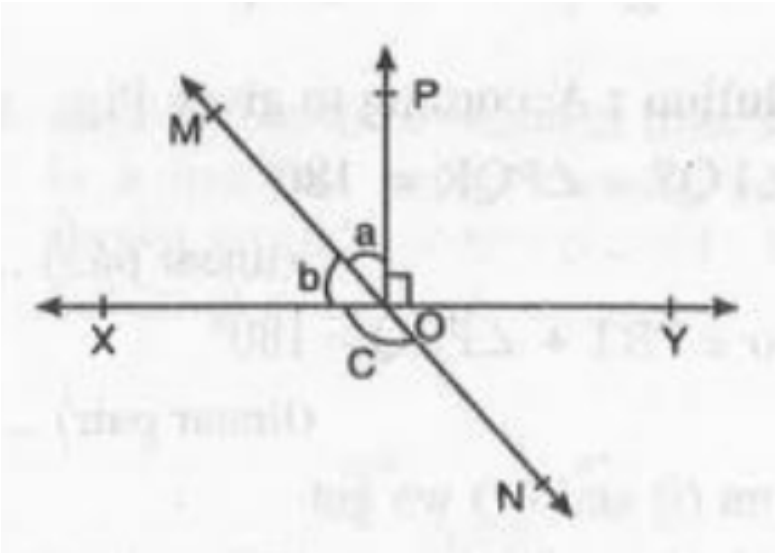
2. In Fig.



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

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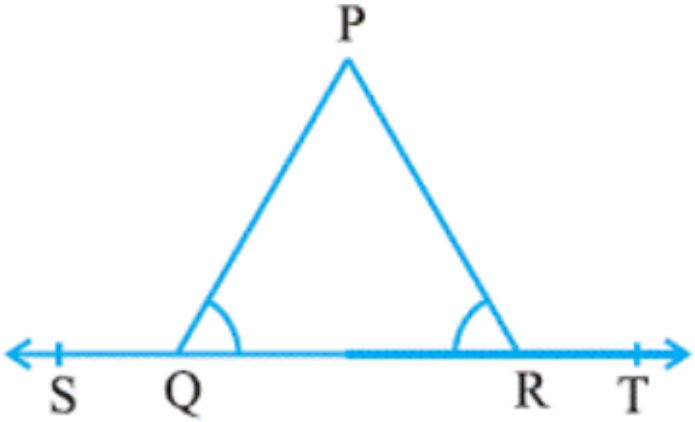
3. In Fig. 6.15, $\angle PQR = \angle PRQ$, then prove that $\angle PQS = \angle PRT$.



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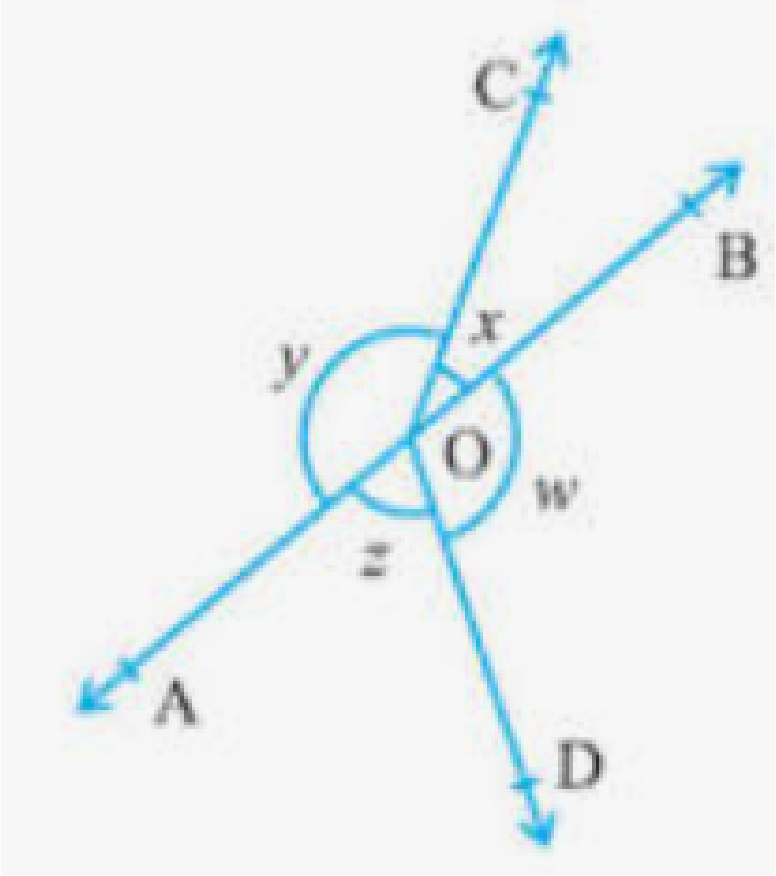
4. In Fig. 6.16, if$x + y = w + z$, then prove that AOB is a line.



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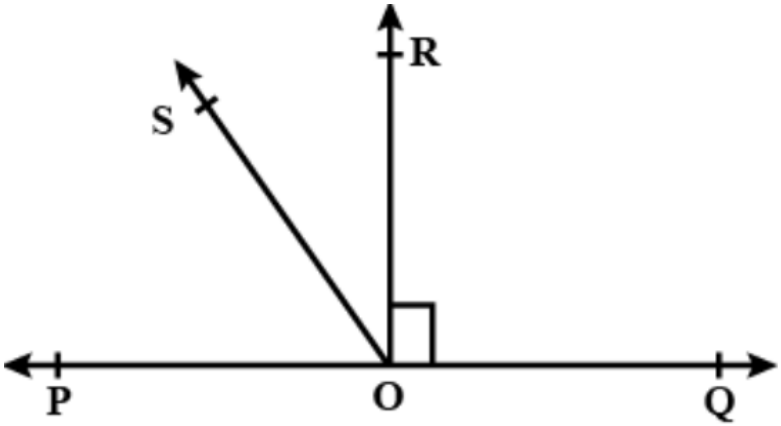
5. In Fig. 6.17, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray

lying between rays OP and OR. Prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$.



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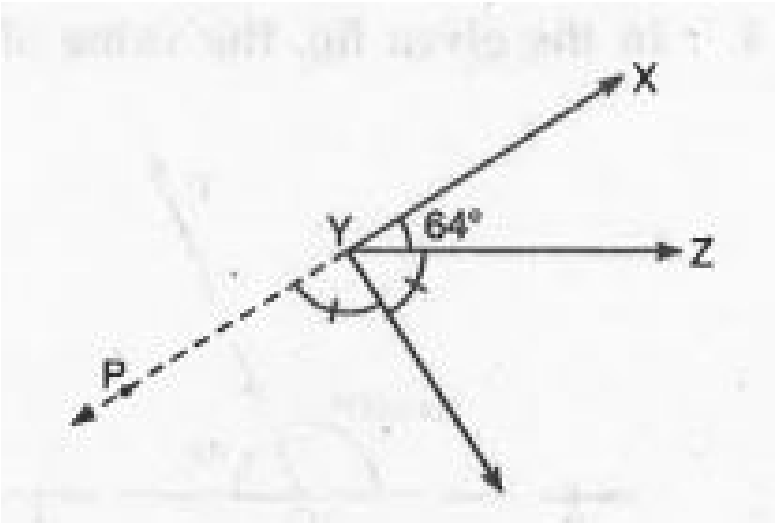
6. In fig.



$\angle XYZ = 64^\circ$ and XY is produced to point P.

If ray YQ bisect $\angle ZYP$ then the value of $\angle XYQ$ is :

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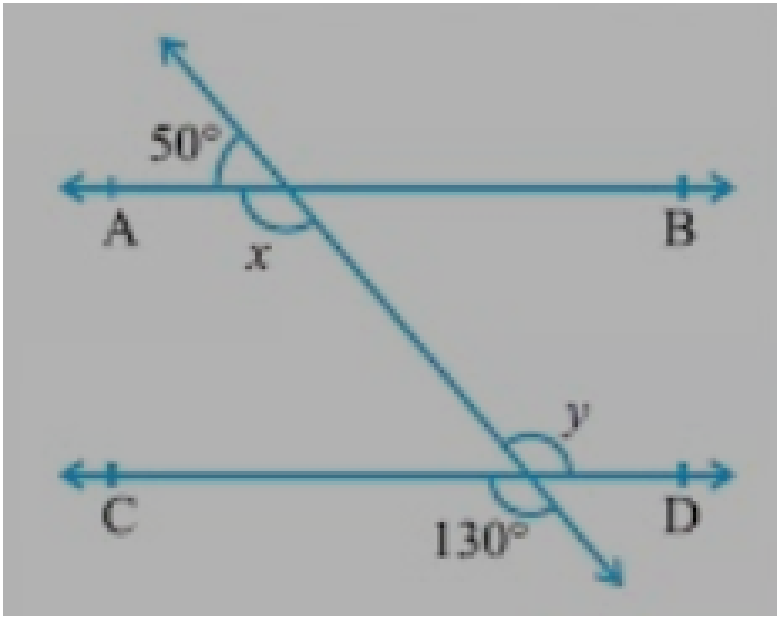
7. In Fig. 6.28, find the values of x and y and then show that $AB \parallel CD$.



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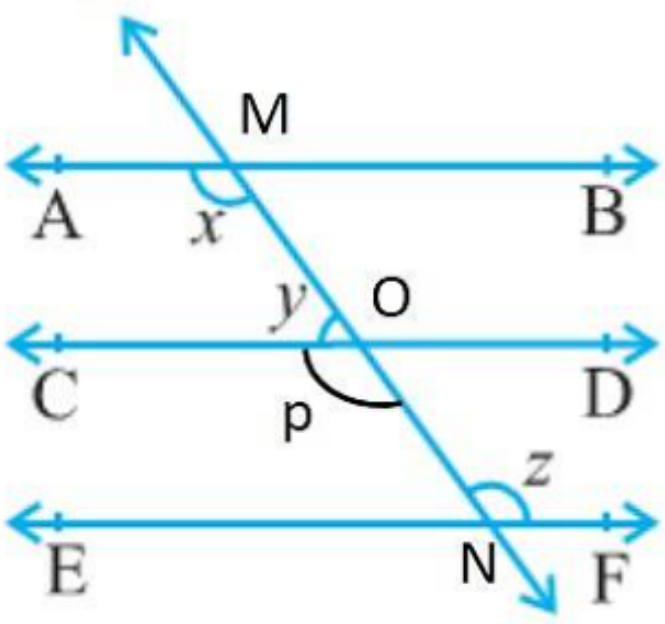
8. In Fig. 6.29, if AB || CD, CD || EF and y : z = 3 : 7, find x.



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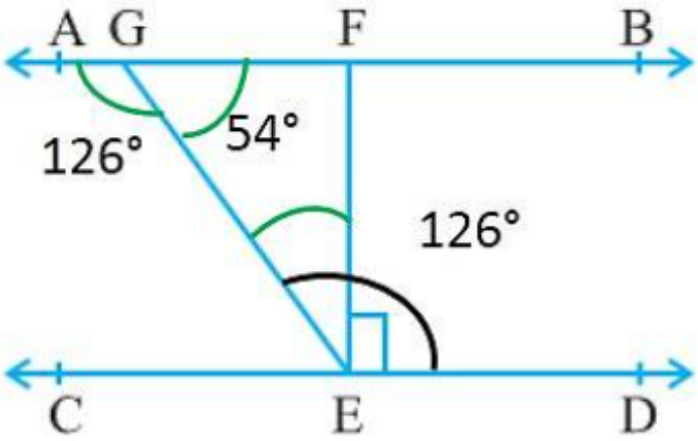
9. In Fig. 6.30, if AB || CD, $EF \perp CD$ and $\angle GED = 126^\circ$, find $\angle AGE, \angle GEF$ and $\angle FGE$.



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10. In Fig. 6.31, if PQ || ST, $\angle PQR = 110^\circ$ and $\angle RST = 130^\circ$, find $\angle QRS$. [Hint : Draw a line parallel to ST through point R.]

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11. In Fig. 6.32, if AB || CD, $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, find x and y.

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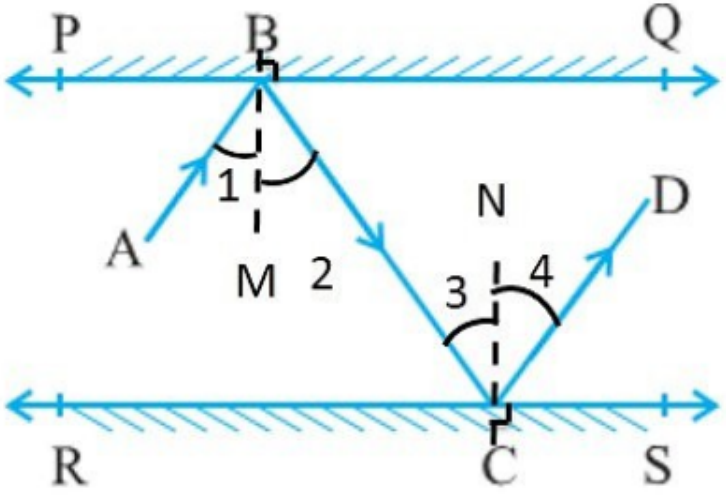
12. In Fig. 6.33, PQ and RS are two mirrors placed parallel to each other. An incident ray AB strikes the mirror PQ at B, the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD. Prove that AB || CD.



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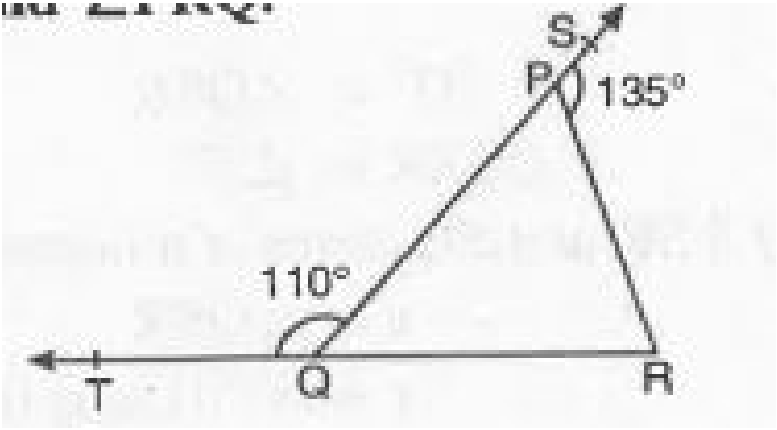
13. In the given fig.



, sides QP and RQ of ΔPQR aer produced to points S and T respectively. If $\angle SPR = 135^\circ$ and $\angle PQT = 110^\circ$, find $\angle PRQ$.

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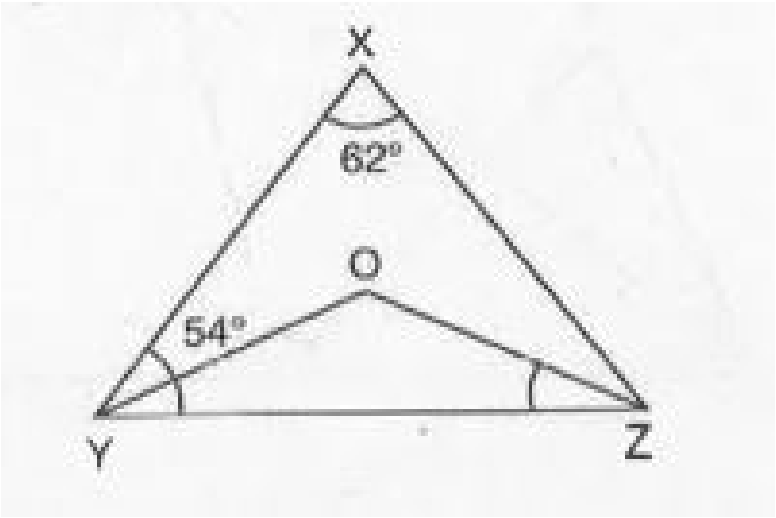
14. In the given fig.



$\angle X = 62^\circ$, $\angle XYZ = 54^\circ$. If YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of ΔXYZ, find $\angle OZY$ and $\angle YOZ$.

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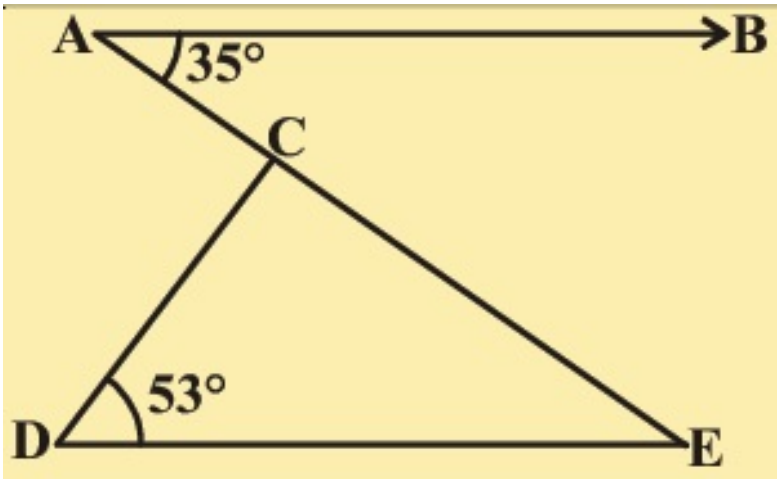
15. In Fig. 6.41, if AB || DE, $\angle BAC = 35^\circ$ and $\angle CDE = 53^\circ$, find $\angle DCE$.



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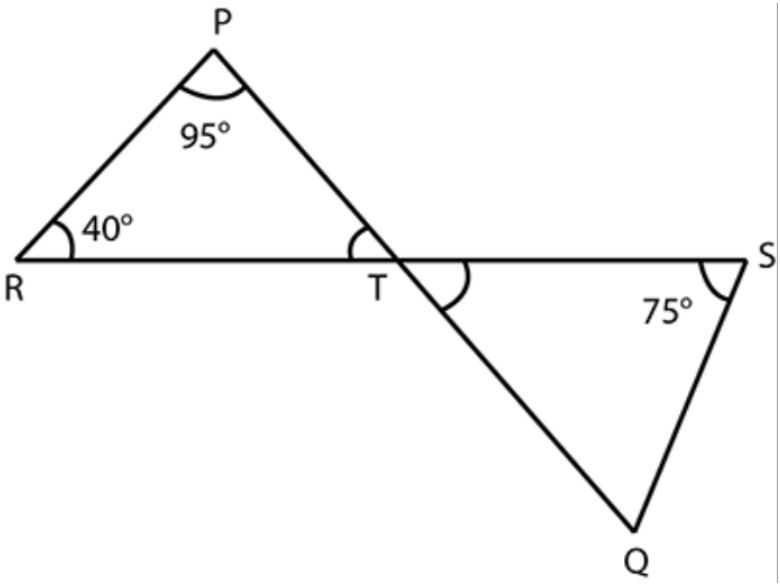
16. In Fig. 6.42, if lines PQ and RS intersect at point T, such that

$\angle PRT = 40^\circ$, $\angle RPT = 95^\circ$ and $\angle TSQ = 75^\circ$, find $\angle SQT$.



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17. In Fig. 6.43, if $PQ \perp PS$, PQ $\|$ SR, $\angle SQR = 28^\circ$ and $\angle QRT = 65^\circ$, then find

the values of x and y.

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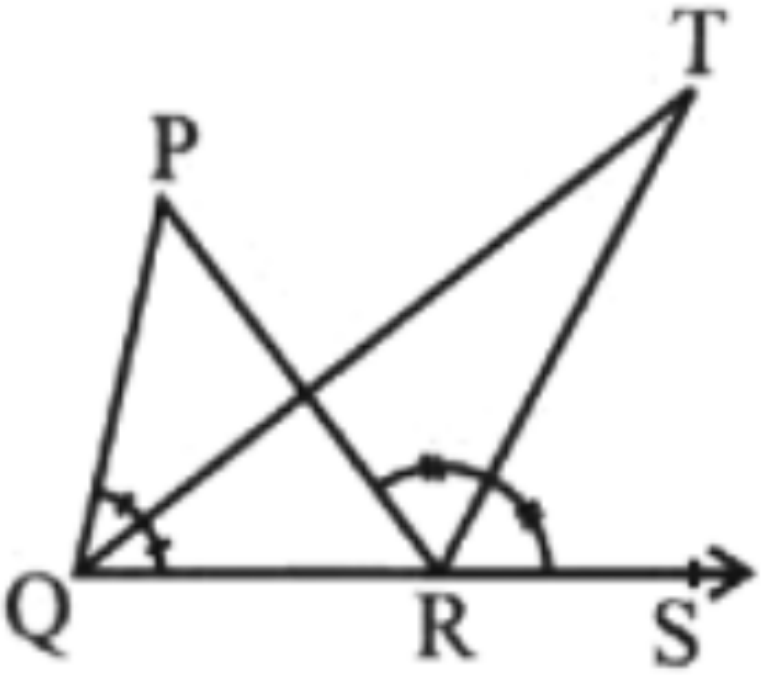
18. In Fig. 6.44, the side QR of $\triangle PQR$ is produced to a point S. If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T, then

prove that $\angle QTR = \frac{1}{2}\angle QPR$.



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Example

1. In Fig. 6.9, lines PQ and RS intersect each other at point O. If $\angle POR : \angle ROQ = 5 : 7$, find all the angles.

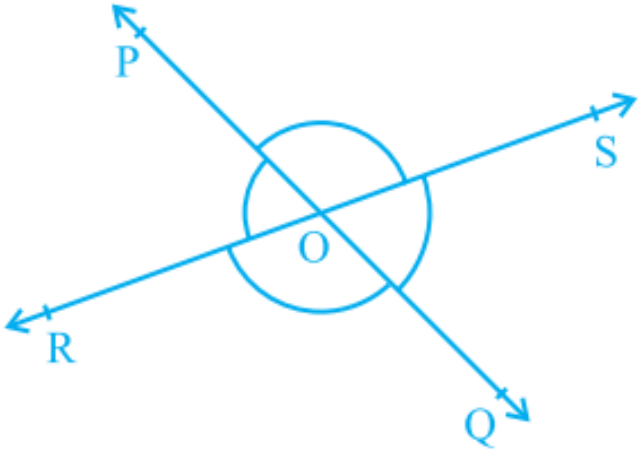

Fig. 6.9

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2. In Fig. 6.10, ray OS stands on a line POQ. Ray OR and ray OT are angle bisectors of $\angle POS$ and $\angle SOQ$, respectively. If $\angle POS = x$, find $\angle ROT$.

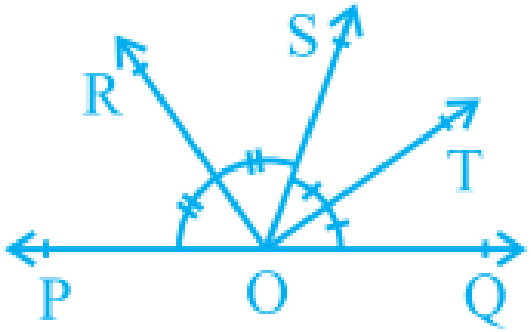

Fig. 6.10

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3. In Fig. 6.11, OP, OQ, OR and OS are four rays. Prove that $\angle POQ + \angle QOR + \angle SOR + \angle POS = 360^\circ$.

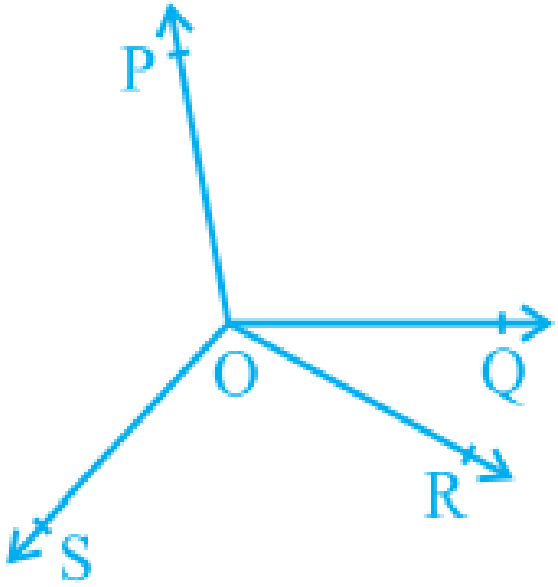

Fig. 6.11

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4. In Fig. 6.24, if PQ || RS, $\angle MXQ = 135^\circ$ and $\angle MYR = 40^\circ$, find $\angle XMY$.

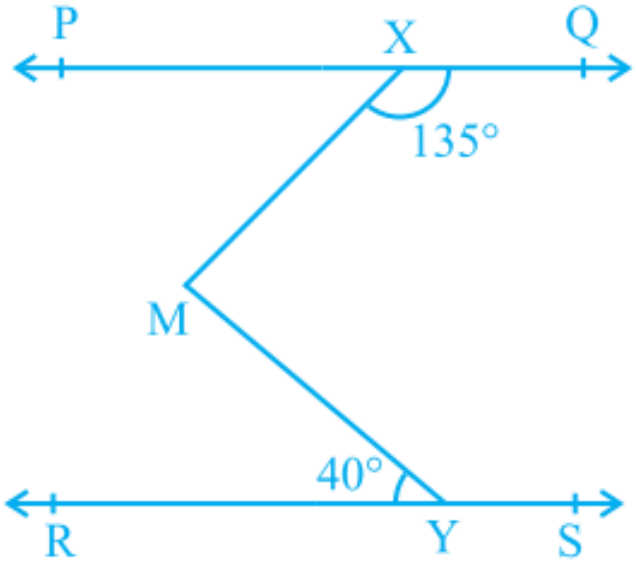

Fig. 6.24

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5. If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

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6. In Fig. 6.27, AB || CD and CD || EF. Also $EA \perp AB$. If $\angle BEF = 55^\circ$, find the values of

x, y and z.

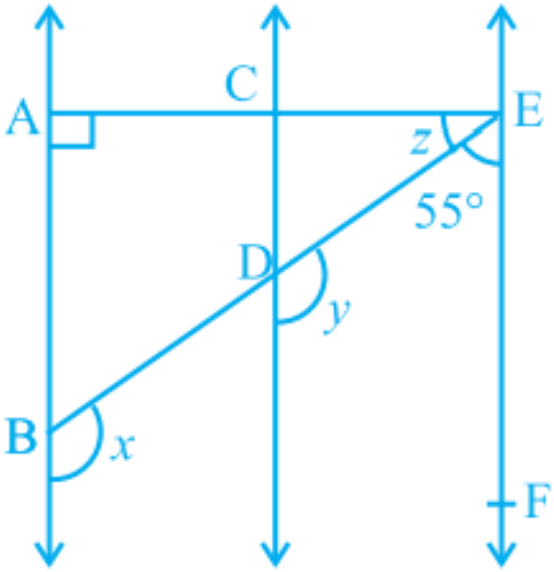

Fig. 6.27

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7. In Fig. 6.37, if $QT \perp PR$, $\angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$, find x and y.

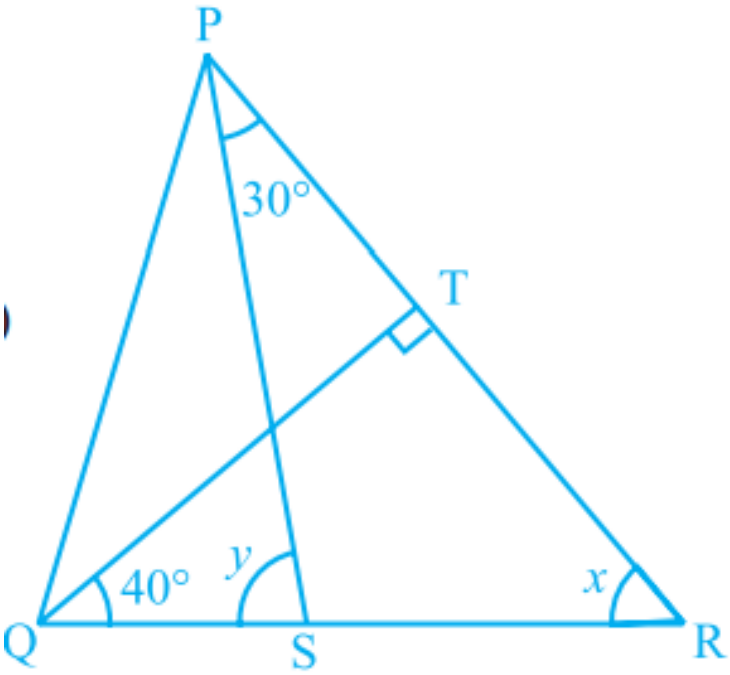

Fig. 6.37

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8. In Fig. 6.38, the sides AB and AC of ΔABC are produced to points E and D respectively. If

bisectors BO and CO of $\angle CBE$ and $\angle BCD$ respectively meet at point O, then prove that $\angle BOC = 90^\circ - \frac{1}{2}\angle BAC$.

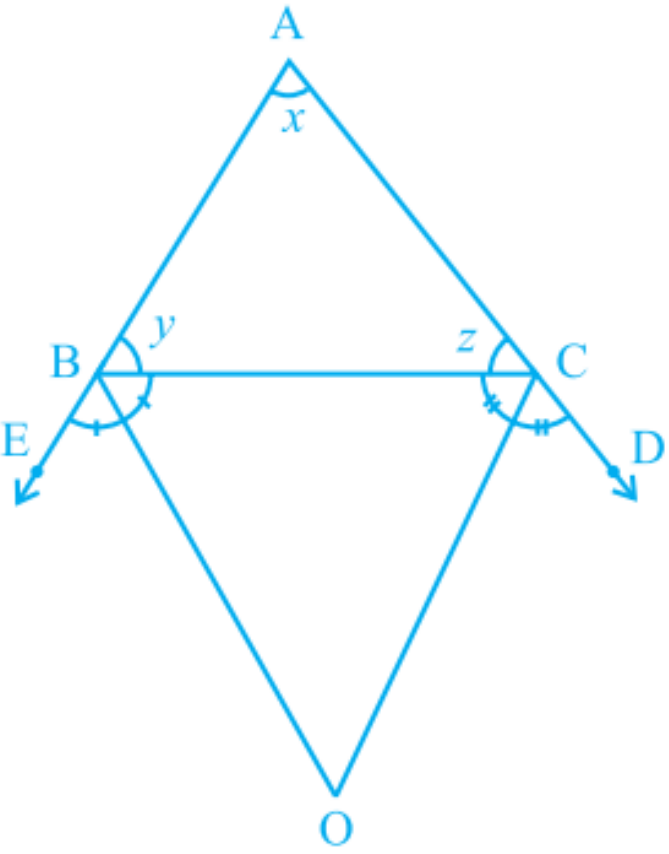

Fig. 6.38

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