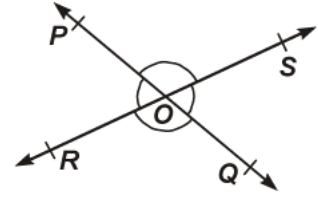


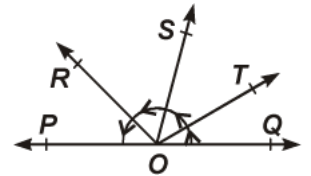
Q1. In figure, lines PQ and RS intersect each other at point O . If

$$\angle POR : \angle ROQ = 5 : 7$$

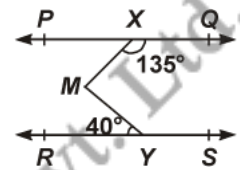
find all the angles.



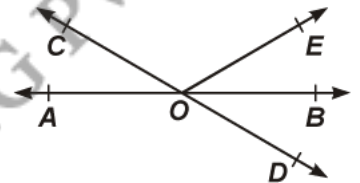
Q2. In figure, ray OS stands on a line POQ . Ray OR and ray OT are angle bisectors of $\angle POS$ and $\angle SOQ$, respectively. If $\angle POS = x$, find $\angle ROT$.



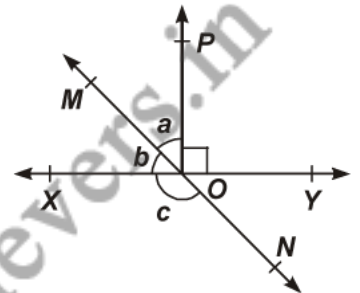
Q3. In figure, if $PQ \parallel RS$, $\angle MXQ = 135^\circ$ and $\angle MYR = 40^\circ$, find $\angle XMY$.



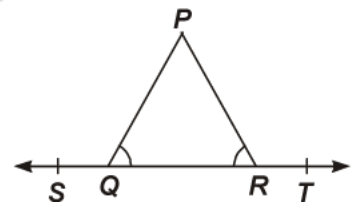
Q4. In the figure, lines AB and CD intersect at O . If $\angle AOC + \angle BOE = 70^\circ$ and $\angle BOD = 40^\circ$, find $\angle BOE$ and reflex $\angle COE$.



Q5. In the figure, lines XY and MN intersect at O . If $\angle POY = 90^\circ$ and $a : b = 2 : 3$, find c .

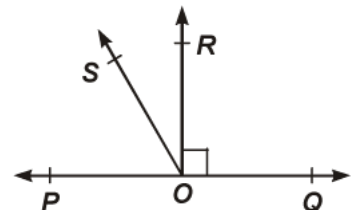


Q6. In the figure, $\angle PQR = \angle PRQ$, Then prove that $\angle PQS = \angle PRT$.

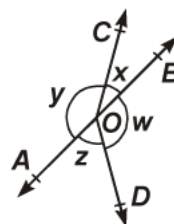


Q7. In the figure, POQ is a line. Ray OR is perpendicular to line PQ . OS is another ray lying between rays OP and OR . Prove that

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

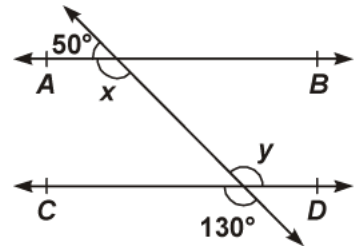


Q8. In the figure, if $x + y = w + z$, then prove that AOB is a line.

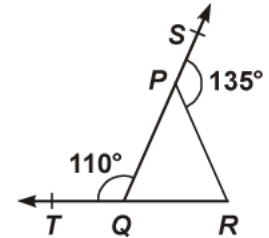


Q9. It is given that $\angle XYZ = 64^\circ$ and XY is produced to point P . Draw a figure from the given information. If ray YQ bisects $\angle ZYP$, find $\angle XYQ$ and reflex $\angle QYP$.

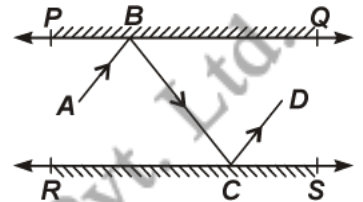
Q10. In the figure, find the values of x and y and then show that $AB \parallel CD$.



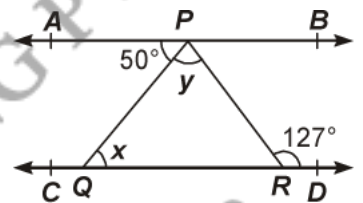
Q11. In the figure, sides QP and RQ of ΔPQR are produced to points S and T respectively. If $\angle SPR = 135^\circ$ and $\angle PQT = 110^\circ$, find $\angle PRQ$.



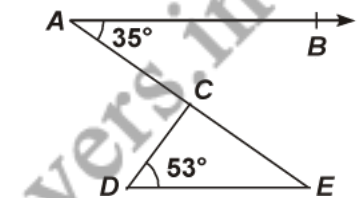
Q12. In the figure, PQ and RS are two mirrors placed parallel to each other. An incident ray AB strikes the mirror PQ at B , the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD . Prove that $AB \parallel CD$.



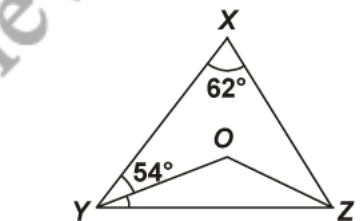
Q13. In the figure, if $AB \parallel CD$, $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, find x and y .



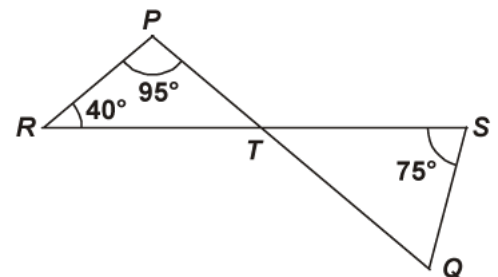
Q14. In the figure, if $AB \parallel DE$, $\angle BAC = 35^\circ$ and $\angle CDE = 53^\circ$, find $\angle DCE$.



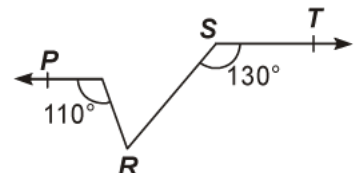
Q15. In the figure, $\angle X = 62^\circ$, $\angle XYZ = 54^\circ$. If YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of ΔXYZ , find $\angle OZY$ and $\angle YOZ$.



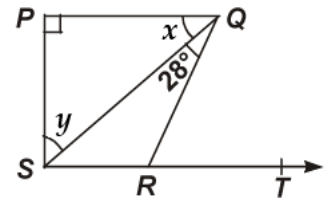
Q16. In the figure, if lines PQ and RS intersect at point T , such that $\angle PRT = 40^\circ$, $\angle RPT = 95^\circ$ and $\angle TSQ = 75^\circ$, find $\angle SQT$.



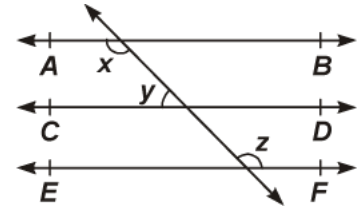
Q17. In the figure, if $PQ \parallel ST$, $\angle PQR = 110^\circ$ and $\angle RST = 130^\circ$, find $\angle QRS$.
[Hind: Draw a line parallel to ST through point R .]



Q18. In the figure, if $PQ \perp PS$, $PQ \parallel SR$, $\angle SQR = 28^\circ$ and $\angle QRT = 65^\circ$, then find the value of x and y .

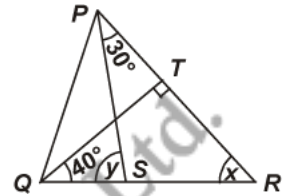


Q19. In the figure, if $AB \parallel CD$, $CD \parallel EF$ and $y : z = 3 : 7$, find x .



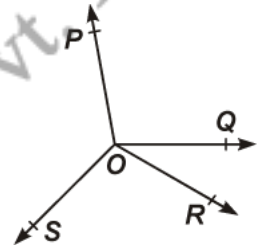
Q20. If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

Q21. In figure, if $QT \perp PR$, $\angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$, find x and y .



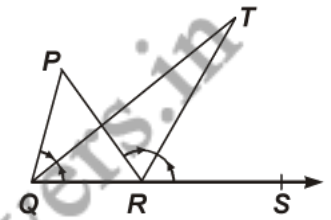
Q22. In figure, OP , OQ , OR and OS are four rays. Prove that

$$\angle POQ + \angle QOR + \angle SOR + \angle POS = 360^\circ.$$

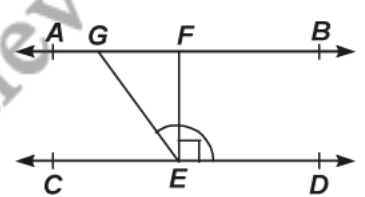


Q23. In the figure, the side QR of $\triangle PQR$ is produced to a point S . If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T , then prove that

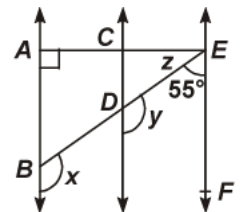
$$\angle QTR = \frac{1}{2} \angle QPR.$$



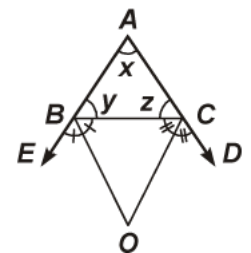
Q24. In the figure, if $AB \parallel CD$, $EF \perp CD$ and $\angle GED = 126^\circ$, find $\angle AGE$, $\angle GEF$ and $\angle FGE$.



Q25. In figure, $AB \parallel CD$ and $CD \parallel EF$. Also, $EA \perp AB$. If $\angle BEF = 55^\circ$, find the values of x , y and z .



Q26. In figure, the sides AB and AC of $\triangle ABC$ 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 $\angle BOC = 90^\circ - \frac{1}{2} \angle BAC$.



- S1.** $\angle POR = 75^\circ$, $\angle ROQ = 105^\circ$, $\angle POS = 105^\circ$. $\angle SOQ = 75^\circ$.
- S2.** $\angle ROT = 90^\circ$.
- S3.** $\angle XMY = 85^\circ$.
- S4.** $30^\circ, 250^\circ$.
- S5.** 126° .
- S6.** Proved.
- S7.** $\angle QOS = \angle SOR + \angle ROQ$ and $\angle POS = \angle POR - \angle SOR$.
- S8.** Sum of all the angles at a point = 360° .
- S9.** $122^\circ, 302^\circ$.
- S10.** $130^\circ, 130^\circ$.
- S11.** 65° .
- S12.** Angle of incidence = Angle of reflection. At point B , draw $BE \perp PQ$ and at point C , draw $CF \perp RS$.
- S13.** $50^\circ, 77^\circ$.
- S14.** 92° .
- S15.** $32^\circ, 121^\circ$.
- S16.** 60° .
- S17.** 60° .
- S18.** $37^\circ, 53^\circ$.
- S19.** 126° .
- S20.** Proved.
- S21.** $x = 50^\circ$, $y = 80^\circ$.
- S22.** Proved.
- S23.** Sum of the angles of $\triangle PQR =$ Sum of the angles of $\triangle QTR$ and $\angle PRS = \angle QPR + \angle PQR$.
- S24.** $126^\circ, 36^\circ, 54^\circ$.
- S25.** $x = 125^\circ$, $y = 125^\circ$, $z = 35^\circ$.

S26. Proved.

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