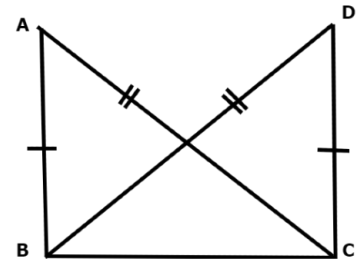


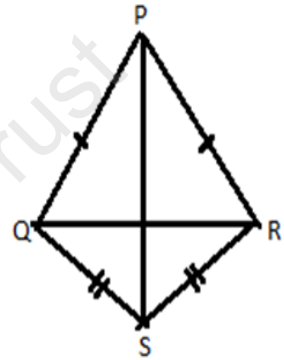


QA Applying SSS and RHS Rules Worksheet

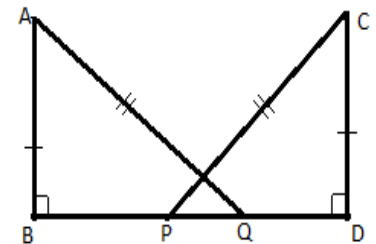
Q1) In the given figure, $AB=CD$ and $AC=DB$. Prove that $\angle ABC = \angle DCB$.



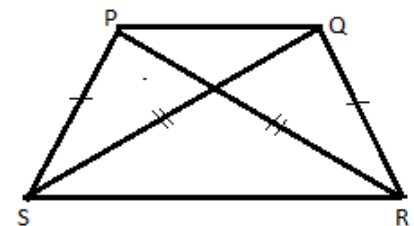
Q2) PQR and SQR are two isosceles triangles on the same base QR. Show that $\triangle PQS \cong \triangle PRS$



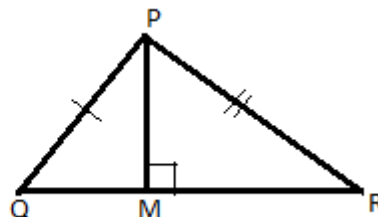
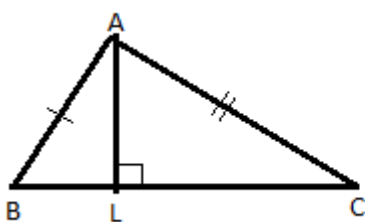
Q3) In the figure, $AB = CD$ and $AQ = CP$. Prove that $BP = DQ$.



Q4) In the given figure, $PS = QR$ and $PR = QS$. Prove that $\angle SPQ = \angle RQP$



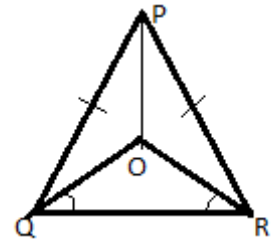
Q5) In $\triangle ABC$ and $\triangle PQR$, $AB = PQ$, $AC = PR$. AL is perpendicular to BC and PM is perpendicular to QR. If $AL = PM$, then prove that $\triangle ABC \cong \triangle PQR$.



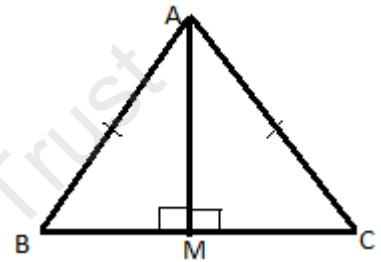


Q6) PQR is an isosceles triangle in which $PQ = PR$. O is an interior point of the triangle such that

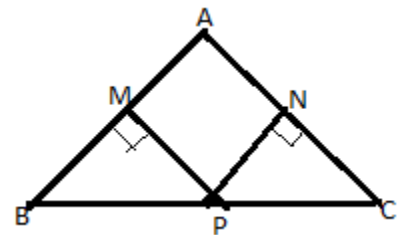
$OQ = OR$. Prove that PO bisects QPR.



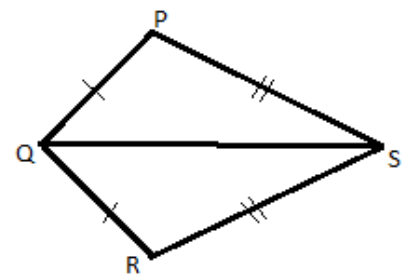
Q7) $\triangle ABC$ is an isosceles triangle in which $AB = AC$. AM is the altitude to BC. Prove that AM is also the median of $\triangle ABC$ through A.



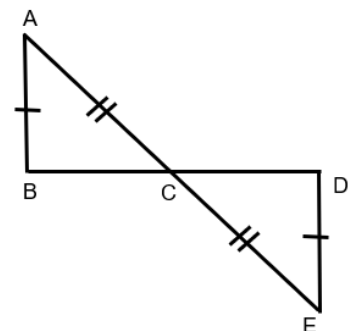
Q8) In $\triangle ABC$, P is the mid-point of BC. PM is perpendicular to AB and PN is perpendicular to AC and $PM = PN$. Prove that $AM = AN$.



Q9) PQRS is a quadrilateral in which $PQ = RQ$ and $PS = RS$. Prove that PS bisects both the angles $\angle PQR$ and $\angle PSR$.



Q10) In the given figure, C is the mid-point of line BD and $AB = DE$ & $AC = EC$. Prove that $\triangle ABC \cong \triangle EDC$.





QA Applying SSS and RHS Rules Answer Key

Ans 1.

In $\triangle ABC$ and $\triangle DCB$,

$AB = DC$ (Given)

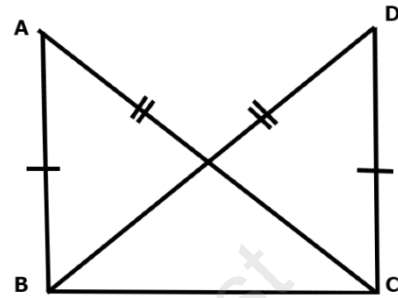
$AC = DB$ (Given)

$BC = BC$ (common)

Hence, $\triangle ABC \cong \triangle DCB$ (by SSS criteria)

$\angle ABC = \angle DCB$ (by CPCT)

Hence proved.



Ans 2.

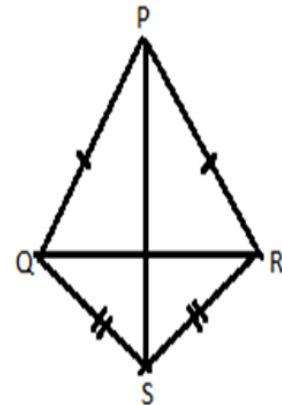
In $\triangle PQS$ and $\triangle PRS$,

$PQ = PR$ (Given that $\triangle PQR$ is isosceles)

$QS = RS$ (Given that $\triangle SQR$ is isosceles)

$PS = PS$ (Common)

Using SSS rule of congruency $\triangle PQS \cong \triangle PRS$.



Ans 3.

In right angled triangles, $\triangle ABQ$ and $\triangle CDP$,

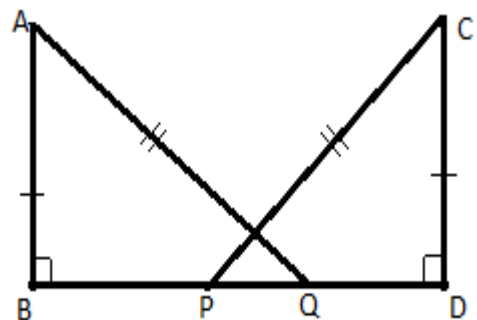
$AB = CD$ (Given)

$AQ = CP$ (Given)

Using RHS rule of congruency, $\triangle ABQ \cong \triangle CDP$.

Thus, $BQ = DP$.

$BP = BQ - PQ = DP - PQ$ (since $BQ = DP$) = DQ





Ans 4.

In ΔSPQ and ΔRQP ,

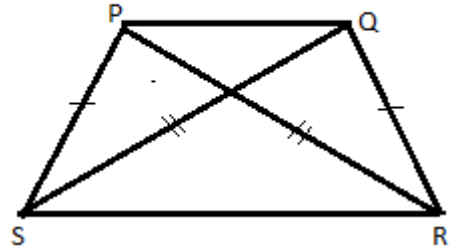
$PS = QR$ (Given)

$PR = QS$ (Given)

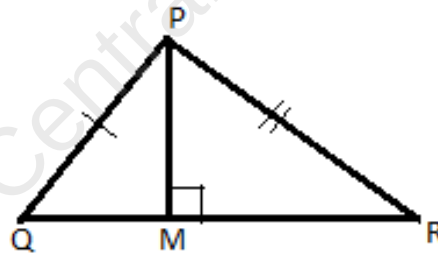
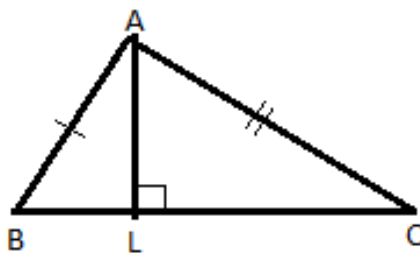
$PQ = PQ$

By SSS property of congruence, $\Delta SPQ \cong \Delta RQP$

$\therefore \angle SPQ = \angle RQP$.



Ans 5.



AL is perpendicular to BC and PM is perpendicular to QR.

ΔABL and ΔPQM are right angled triangles, in which,

$AB = PQ$ (Given)

$AL = PM$

By RHS criterion of congruence, $\Delta ABL \cong \Delta PQM$.

Thus $BL = QM$.

Similarly, we can prove that $\Delta ACL \cong \Delta PRM$.

Thus, we have, $CL = RM$

In ΔABC and ΔPQR ,

$AB = PQ$ and $AC = PR$ (Given)

Also, $BC = BL + CL = QM + RM$ ($BL = QM$ and $CL = RM$)

$= QR$

By SSS criterion of congruence, $\Delta ABC \cong \Delta PQR$.



Ans 6:

In ΔOQR , $\angle OQR = \angle ORQ$

Thus, $OQ = OR$ (Sides opposite to equal angles are equal)

In ΔPQO and ΔPRO ,

$OQ = OR$

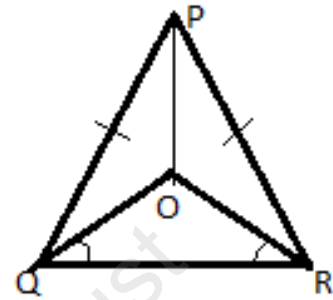
$PQ = PR$ (Given)

$PO = PO$

Using SSS criterion of congruence, $\Delta PQO \cong \Delta PRO$

Thus, $\angle QPO = \angle RPO$

PO bisects $\angle QPR$.



Ans 7:

AM is the altitude to BC . Thus, $\angle AMB = \angle AMC = 90^\circ$

ΔABM and ΔACM are right angled triangles, in which,

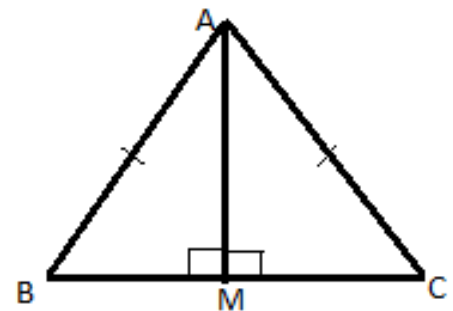
$AB = AC$ and $AM = AM$

Using RHS criterion of congruence, $\Delta ABM \cong \Delta ACM$.

Thus $BM = CM$

M is the mid-point of BC .

Thus, AM is the median through point A .



Ans 8:

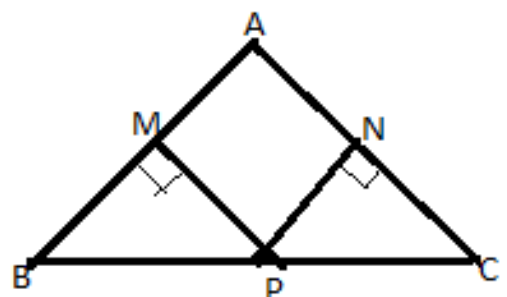
ΔBMP and ΔCNP are right angled triangles, in which,

$BP = CP$ (P is the mid-point of BC)

$PM = PN$

By RHS criterion of congruence, $\Delta BMP \cong \Delta CNP$.

Thus $\angle MBP = \angle NCP$ and $MB = NC$





In, ΔABC ,

$$\angle B = \angle MBP = \angle NCP = \angle C.$$

Thus $AB = AC$ (Sides opposite to equal angles are equal)

$$\begin{aligned} AM &= AB - MB = AC - NC \quad (AB = AC \text{ and } MB = NC) \\ &= AN \end{aligned}$$

Ans 9:

In ΔPQS and ΔRQS ,

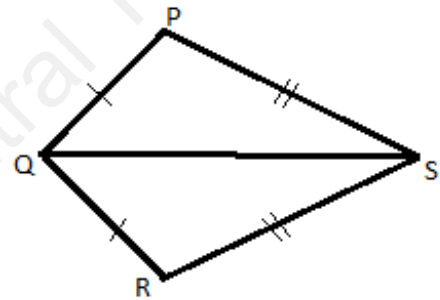
$$PQ = RQ$$

$$PS = RS \text{ and } QS = QS.$$

By SSS criterion of congruence, $\Delta PQS \cong \Delta RQS$.

Thus $\angle PQS = \angle RQS$ and $\angle PSQ = \angle RSQ$.

QS bisects both the angles $\angle PQR$ and $\angle PSR$.



Ans 10:

In ΔABC and ΔEDC ,

$$AB = DE \text{ (Given)}$$

$$AC = EC \text{ (Given)}$$

$$BC = CD \text{ (Since C is the mid-point of BD)}$$

By SSS criterion of congruence, $\Delta ABC \cong \Delta EDC$.

