

1. Complete the proof.

Given: $18 = 3(3x - 6)$

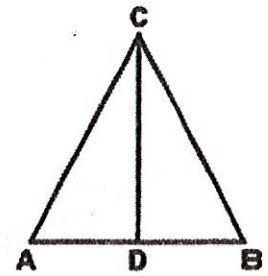
Prove: $x = 4$

Statements	Reasons
1. $18 = 3(3x - 6)$	1. Given
2. $18 = 9x - 18$	2. Distributive POE
3. $36 = 9x$	3. Addition POE
4. $4 = x$	4. Division POE
5. $x = 4$	5. Symmetric POE

2. Complete the proof.

GIVEN: $\triangle ABC$, $\overline{CD} \perp \overline{AB}$
D midpoint of \overline{AB} .

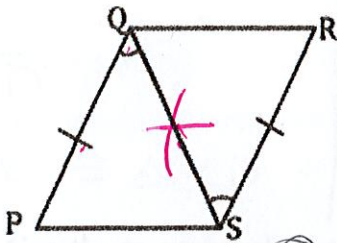
PROVE: $\triangle ACD \cong \triangle BCD$



Statements	Reasons
1. $\overline{CD} \perp \overline{AB}$	1. Given
2. D is the midpt. of AB	2. Given
3. $\angle CDA$ & $\angle CDB$ are rt. angles	3. def. of \perp lines
4. $\angle CDA \cong \angle CDB$	4. all right angles are \cong
5. $CD \cong CD$	5. Reflexive POE
6. $AD \cong BD$	6. Def of midpoint
7. $\triangle ACD \cong \triangle BCD$	7. SAS

3-6: Can the two triangles be proven congruent? Circle YES or NO. If so, tell which postulate or theorem you used and finish the congruency statement.

3.

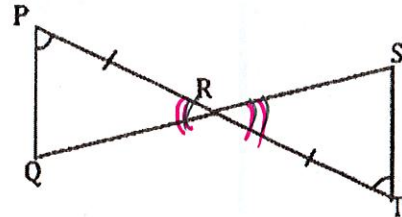


Congruent? Circle YES or NO

$\triangle PQS \cong \triangle RQS$

by SAS

4.

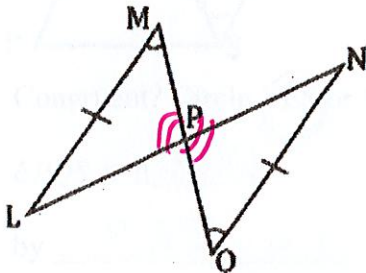


Congruent? Circle YES or NO

$\triangle PQR \cong \triangle STR$

by ASA

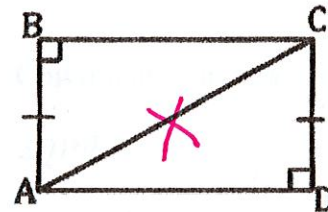
5.



Congruent? Circle YES or NO

$\triangle MLO \cong \triangle NPO$ by AAS

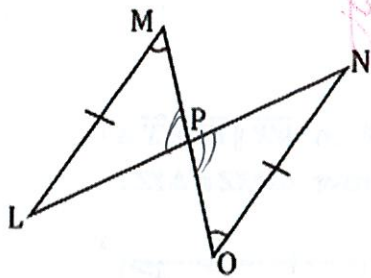
6.



Congruent? Circle YES or NO

$\triangle ABC \cong \triangle CDA$ by HL

5.

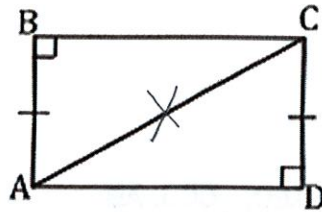


Congruent? Circle YES or NO

$\Delta MPL \cong \Delta OPN$

by AAS

6.



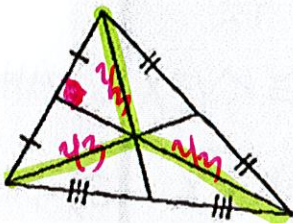
Congruent? Circle YES or NO

$\Delta ABC \cong \Delta CDA$

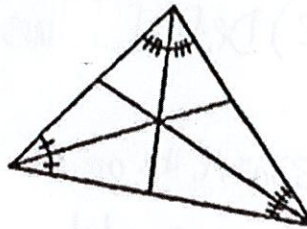
by HL

7-10: Match the picture with the corresponding point of concurrency.

A 7.



B 8.



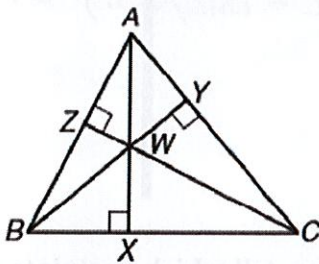
A. Centroid

B. Incenter

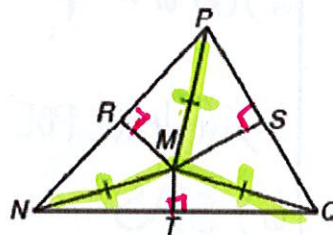
C. Circumcenter

D. Orthocenter

D 9.

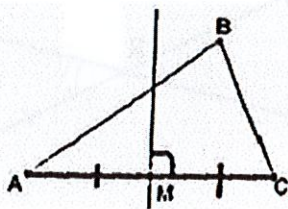


C 10.

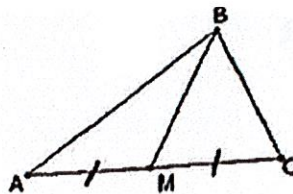


11-14: Match the picture with the corresponding segments.

G 11.



E 12.

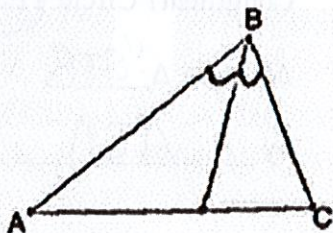


E. Median

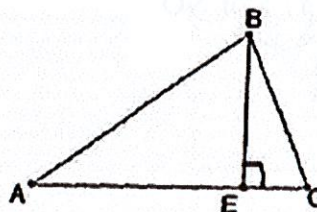
F. Angle Bisector

G. Perpendicular Bisector

F 13.



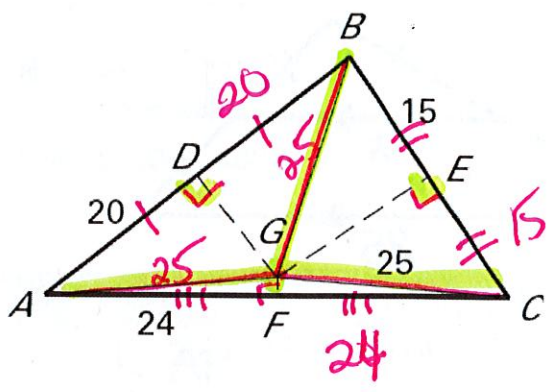
H 14.



H. Altitude

In the diagram, the perpendicular bisectors (shown with dashed segments) of $\triangle ABC$ meet at G —the circumcenter. and are shown dashed. Find the indicated measure.

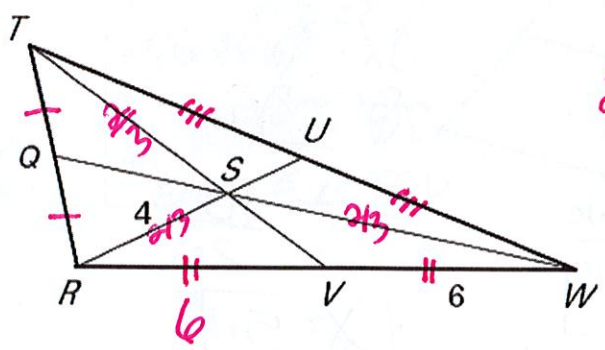
15. $AG =$ 25 20. $BD =$ 20
 16. $CF =$ 24 21. $AB =$ 40
 17. $CE =$ 15 22. $AC =$ 48
 18. $m\angle ADG =$ 90°



19. If $BG = (2x - 15)$, find x .
 $2x - 15 = 25$
 $2x = 40$
 $x = 20$

Point S is the centroid of $\triangle RTW$, $RS = 4$, $VW = 6$, and $TV = 9$. Find the length of each segment.

20. $RV =$ 6
 21. $SU =$ 2
 22. $RU =$ 6
 23. $RW =$ 12
 24. $TS =$ 6
 25. $SV =$ 3

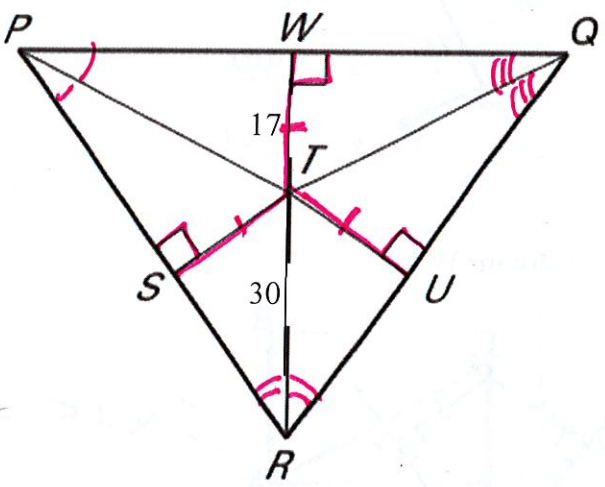


Point T is the incenter of $\triangle PQR$.

26. If Point T is the incenter, then Point T is the point of concurrency of the angle bisectors.

27. $ST =$ 17

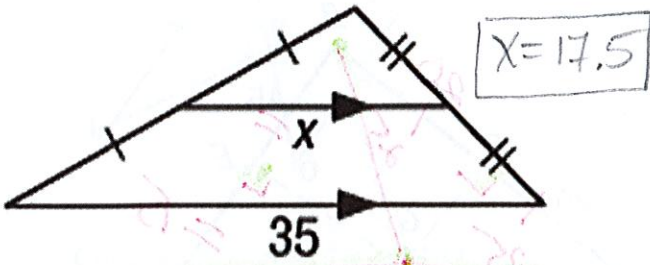
28. If $TU = (2x - 3)$, find x .
 $x =$ 10
 $2x - 3 = 17$
 $2x = 20$
 $x = 10$



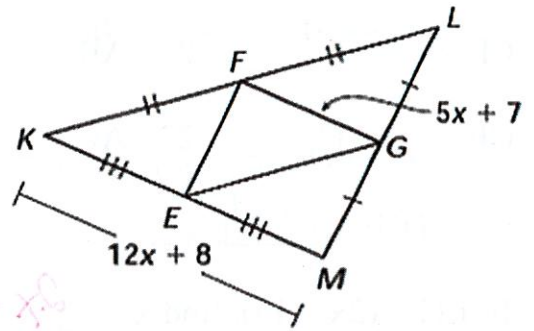
29. If $m\angle PRT = 34^\circ$, then $m\angle QRT =$ 34°

30. If $m\angle RPQ = 52^\circ$, then $m\angle RPT =$ 26°
 $\frac{1}{2}$ of larger \angle

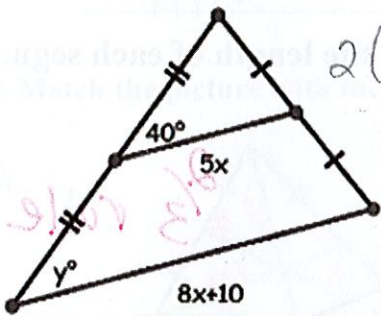
31. Solve for each variable.



32. Use the diagram below to find FG.



33. Solve for x and y.



$y = 40^\circ$

$2(5x) = 8x + 10$

$10x = 8x + 10$

$-8x \quad -8x$

$2x = \frac{10}{2}$

$x = 5$

$2(5x + 7) = 12x + 8$

$10x + 14 = 12x + 8$

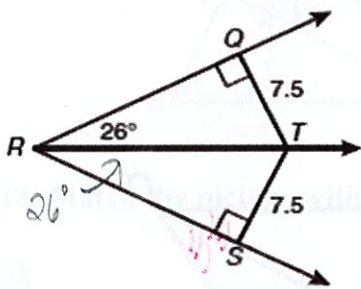
$14 = 2x + 8$

$\frac{6}{2} = \frac{2x}{2}$

$x = 3$

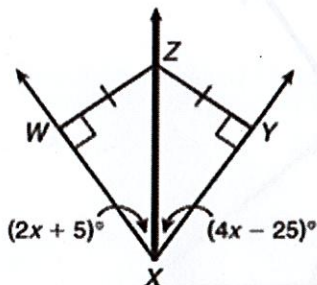
$FG = 5(3) + 7 = 22$

34. Find the $m\angle QRS$.



$\angle QRS = 26 \times 2 = 52^\circ$

35. Find the $m\angle WXZ$.



$2x + 5 = 4x - 25$

$5 = 2x - 25$

$\frac{30}{2} = \frac{2x}{2}$

$x = 15$

$m\angle WXZ = 2x + 5$

$= 2(15) + 5$

$= 35^\circ$