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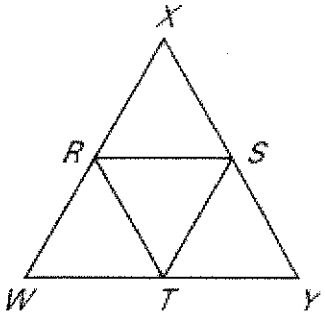
Geometry A Chapter 5 Review

Relationships within Triangles

Use ΔWXY, where R, S, and T are midpoints of the sides.



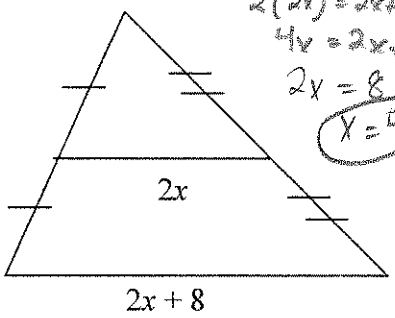
1. If RS = 15, then WY = 30

2. $\overline{RT} \cong$ $\overline{XS}$ and $\overline{SY}$

3. If the perimeter of ΔRST is 24, then the perimeter of ΔWXY is 48.

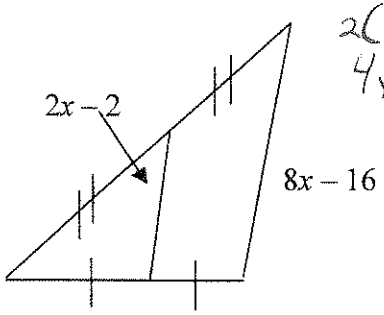
Find the value of x.

4.



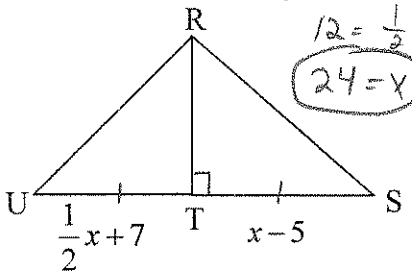
$2(2x) = 2x+8$
$4x = 2x+8$
$2x = 8$
$x = 4$

5.



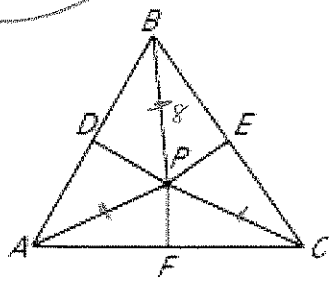
$2(2x-2) = 8x-16$
$4x-4 = 8x-16$
$12 = 4x$
$3 = x$

6. $\overline{RT}$ is the perpendicular bisector of ΔRSU. Find x.

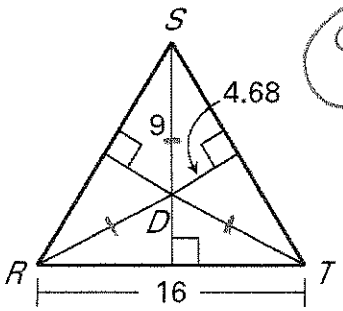


$\frac{1}{2}x+7 = x-5$
$12 = \frac{1}{2}x$
$24 = x$

7. In the diagram shown, the perpendicular bisectors of ΔABC meet at point P. If BP = 8, find PC. = 8

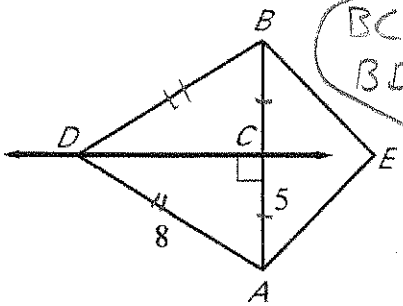


8. The perpendicular bisectors of ΔRST meet at point D. Find RD.



9

9. $\overleftrightarrow{CD} \perp \overline{AB}$ and $\overline{AC} \cong \overline{BC}$. Find BC & BD.



BC = 5
BD = 8

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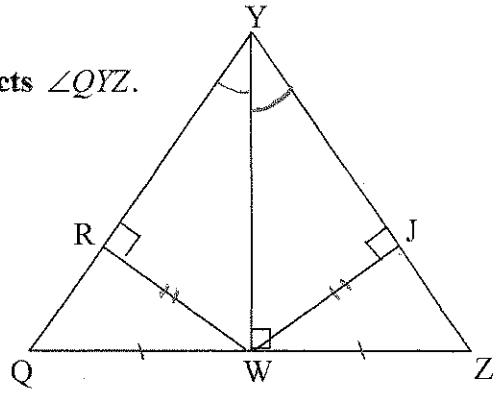
Use the information shown to answer the next two questions.

$\overrightarrow{WY}$ **is the perpendicular bisector of** $\overline{QZ}$ **and** $\overrightarrow{WY}$ **bisects** $\angle QYZ$.

$RW = 3x + 8$ **and** $JW = 2x + 10$

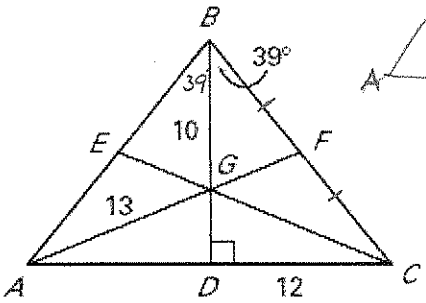
$QY = 5y + 16$ **and** $YZ = 7y$



10. Find the value of x. $3x+8 = 2x+10$
$x = 2$

11. Find the value of y. $5y+16 = 7y$
$16 = 2y$
$8 = y$

Use the figure for the next three questions. In ΔABC, $\overline{BD}$ **is an angle bisector,** $m\angle DBC = 39°$, **and** $BF = FC$.

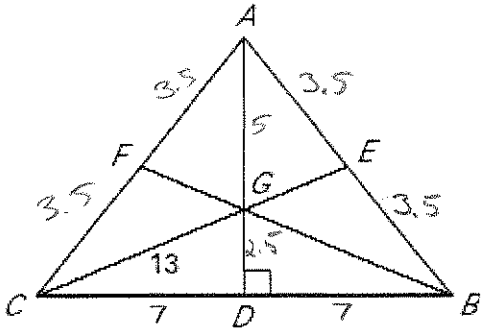


12. In Find $m\angle$BAC. $= 51°$

13. Identify a median of ΔABC. $\overline{AF}$

14. Identify an altitude of ΔABC. $\overline{BD}$

Use the following information and diagram to answer the next four questions.
G is the centroid of ΔABC, $\overline{AD} \perp \overline{BC}$, CD = 7, EB = 3.5, AG = 5, and AC = AB.



15. Find AC $= 7$

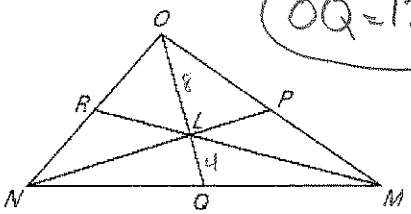
16. Find GD $= 2.5$

17. Find AD $= 7.5$

18. Find the perimeter of ΔABC $= 28$

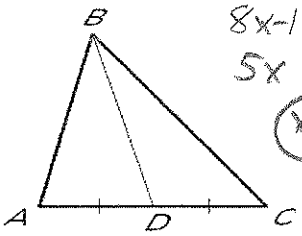
19. In the diagram, L is the centroid of ΔMNO and LQ = 4. Find OQ.

$OQ = 12$



20. $\overline{BD}$ is a median of ΔABC. Find x

$8x - 12 = 3x + 33$
$5x = 45$
$x = 9$



8x – 12 3x + 33

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Determine whether it is possible to draw a triangle with sides of the given lengths in the next six questions.

21. 1, 4, 6 NO

22. 17, 17, 33 Yes

23. 22, 26, 65 NO

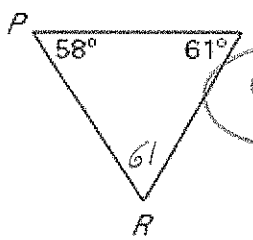
24. 6, 43, 39 Yes

25. 7, 54, 45 NO

26. 3, 4, 5 Yes

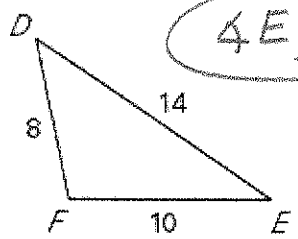
Use the diagram below to list the following:

27. **Sides** in order from least to greatest.



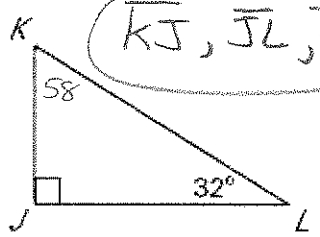
QR, PQ = PR

28. **Angles** in order from least to greatest.



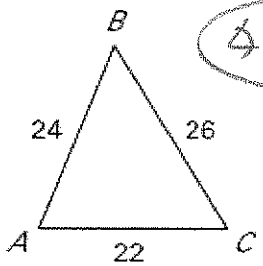
∡E, ∡D, ∡F

29. **Sides** in order from least to greatest.



$\overline{KJ}$, $\overline{JL}$, $\overline{KL}$

30. **Angles** in order from least to greatest.



∡B, ∡C, ∡A

Complete the next statements with one of the following: **A.** *inside* **B.** *on* **C.** *outside*

31. The point of concurrency for perpendicular bisectors of a right triangle is ___B___ the triangle.

32. The point of concurrency for perpendicular bisectors of an acute triangle is ___A___ the triangle.

33. The point of concurrency for perpendicular bisectors of an obtuse triangle is ___C___ the triangle.

34. The centroid of a triangle is located ___A___ the triangle.

35. In an obtuse triangle, the orthocenter is ___C___ the triangle.

36. In an acute triangle, the orthocenter is ___A___ the triangle.

37. In a right triangle, the orthocenter is ___B___ the triangle

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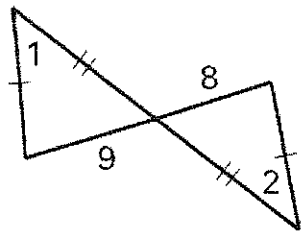
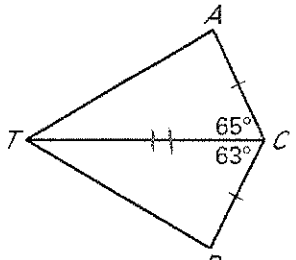
Complete the statements with <, >, or =.

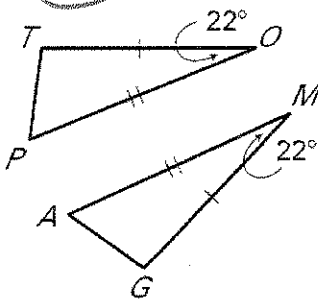
38. $m\angle 1$ ___>___ $m\angle 2$



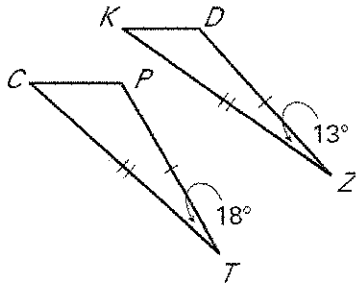
39. AT ___>___ BT



40. TP ___=___ AG



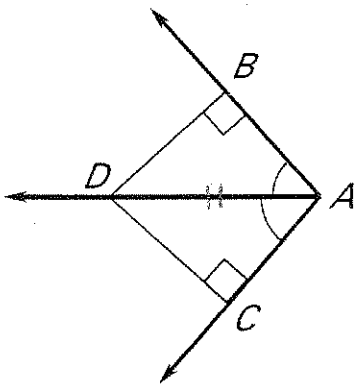
41. KD ___<___ CP



42. **Match the correct reason with each statement.**

REASON BANK

A. Given
B. AAS
C. CPCTC
D. Definition of ⊥ lines
E. Reflexive Property



GIVEN: D is on the bisector of $\angle BAC$, $\angle DAB \cong \angle DAC$, $\overline{DB} \perp \overline{BA}$, $\overline{DC} \perp \overline{CA}$, $\angle DBA \cong \angle DCA$

PROVE: $\overline{DB} \cong \overline{DC}$

Statements	Reasons
1. D is on the bisector of $\angle BAC$, $\angle DAB \cong \angle DAC$ $\overline{DB} \perp \overline{BA}$, $\overline{DC} \perp \overline{CA}$	1. A
2. ∠DBA and ∠DCA are right angles	2. D
3. $\angle DBA \cong \angle DCA$	3. D – Should be Def. of right ∠'s
4. $\overline{DA} \cong \overline{DA}$	4. E
5. ΔDBA ≅ ΔDCA	5. B
6. $\overline{DB} \cong \overline{DC}$	6. C