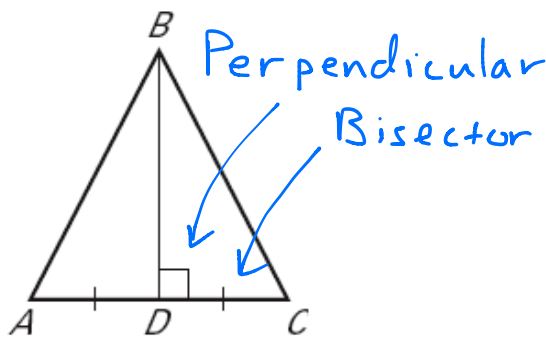
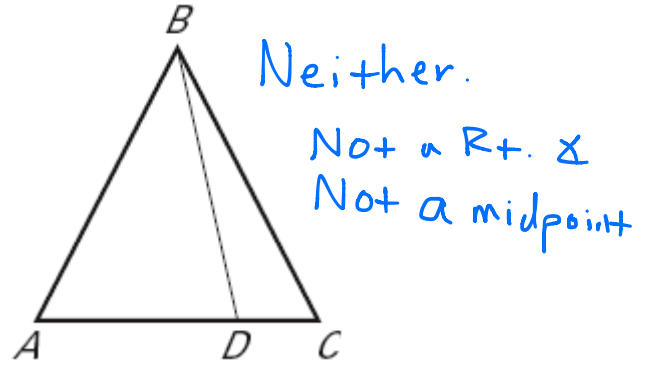


Is \overline{BD} a *median* of $\triangle ABC$? Is \overline{BD} an *altitude*? a *perpendicular bisector*? or *Neither*.

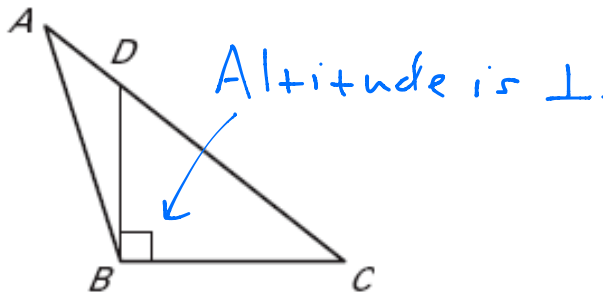
1)



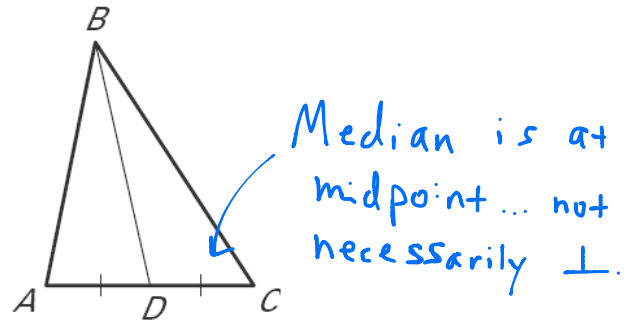
2)



3)

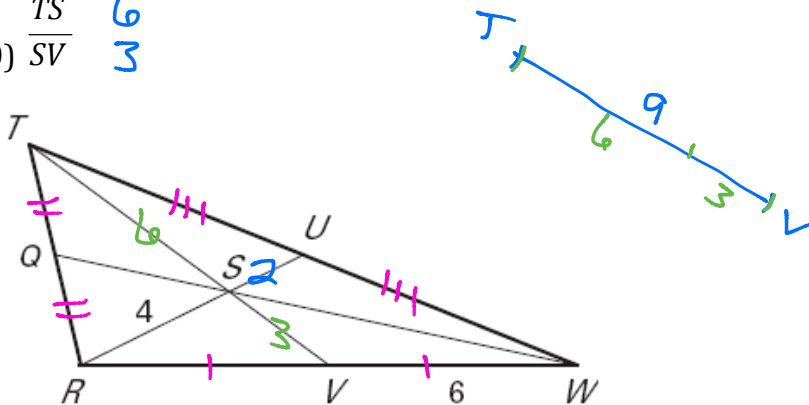


4)



S is the point of concurrency of the **medians** of $\triangle RTW$, $RS = 4$, $VW = 6$, and $TV = 9$. Find the length of each segment.

- 5) \overline{RV} 6
- 6) \overline{SU} 2
- 7) \overline{RU} 6
- 8) \overline{RW} 12
- 9) \overline{TS} 6
- 10) \overline{SV} 3



CD is the perpendicular bisector of AB. AC = 13, AB = 10.

11) $m\angle CDA = \underline{90^\circ}$

12) CD = 12

13) CB = 13

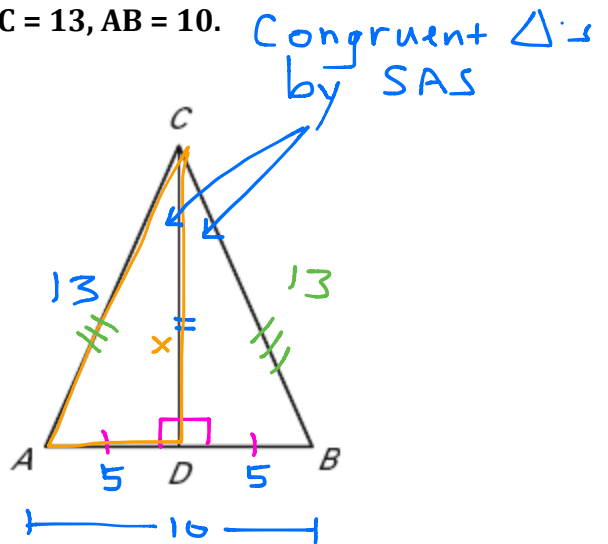
$$5^2 + x^2 = 13^2$$

$$25 + x^2 = 169$$

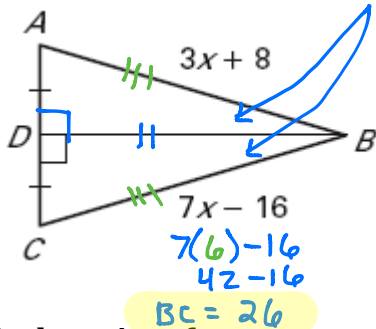
$$-25 \quad -25$$

$$\sqrt{x^2} = \sqrt{144}$$

$$x = 12$$



14) Find the length of BC.



Congruent Δ 's by SAS

$$3x + 8 = 7x - 16$$

$$-3x \quad -3x$$

$$8 = 4x - 16$$

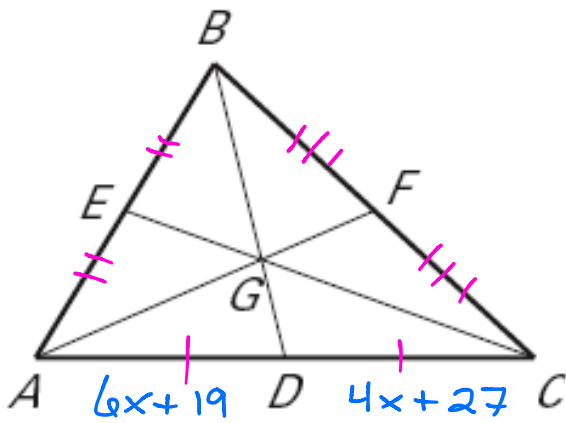
$$+16 \quad +16$$

$$24 = 4x$$

$$6 = x$$

BC = 26

G is the point of concurrency of the medians of Triangle ABC.



$$6x + 19 = 4x + 27$$

$$-4x \quad -4x$$

$$2x + 19 = 27$$

$$-19 \quad -19$$

$$2x = 8$$

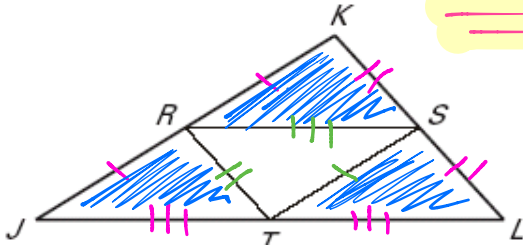
$$x = 4$$

AC = AD + DC
AC = 43 + 43

15) If AD = 6x + 19 and DC = 4x + 27, then x = 4 and AC = 86.

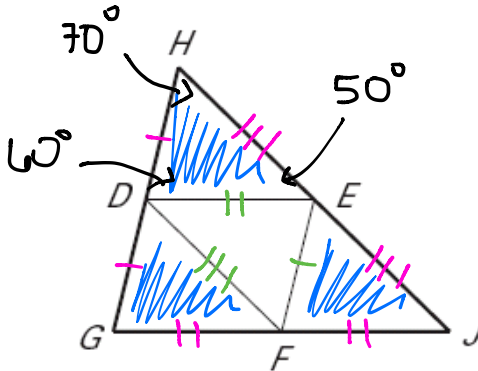
In $\triangle JKL$, $\overline{JR} \cong \overline{RK}$, $\overline{KS} \cong \overline{SL}$, and $\overline{JT} \cong \overline{TL}$. Copy and complete the statement.

Midsegments!



16. $\overline{RS} \parallel \underline{\overline{JL}}$
17. $\overline{ST} \parallel \underline{\overline{KJ}}$
18. $\overline{KL} \parallel \underline{\overline{RT}}$
19. $\overline{SL} \cong \underline{\overline{KS}} \cong \underline{\overline{RT}}$
20. $\overline{JR} \cong \underline{\overline{RK}} \cong \underline{\overline{TS}}$
21. $\overline{JT} \cong \underline{\overline{TL}} \cong \underline{\overline{RS}}$

Use $\triangle GHJ$, where $D, E,$ and F are midpoints of the sides.



$$\begin{aligned}
 2(DE) &= GJ \\
 2(4x+5) &= 3x+25 \\
 8x+10 &= 3x+25 \\
 -3x &\quad -3x \\
 \hline
 5x+10 &= 25 \\
 -10 &\quad -10 \\
 \hline
 5x &= 15 \\
 \frac{5x}{5} &= \frac{15}{5} \\
 x &= 3
 \end{aligned}$$

22. If $DF = 18$, then $HJ = \underline{36}$.
23. If $DE = 4x + 5$ and $GJ = 3x + 25$, what is DE ?

$DE = 17$

$$\begin{aligned}
 4(3)+5 \\
 12+5 \\
 17
 \end{aligned}$$

24. If $HD = 2x + 7$ and $GD = 5x - 1$, what is EF ?

$$\begin{aligned}
 \cancel{2x}+7 &= 5x-1 \\
 -2x &\quad -2x \\
 +7 &= 3x-1 \\
 \hline
 8 &= 3x \\
 x &= \frac{8}{3}
 \end{aligned}$$

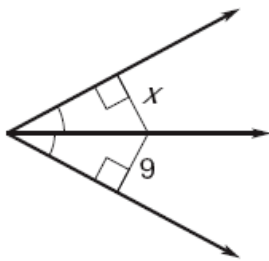
$$\begin{aligned}
 EF &= HD \\
 2\left(\frac{8}{3}\right)+7 &= \frac{16}{3}+7 \Rightarrow 12\frac{1}{3}
 \end{aligned}$$

25. If $m\angle DHE = 70^\circ$ and $m\angle HDE = 60^\circ$, then $m\angle J = \underline{50^\circ}$ and $m\angle G = \underline{60^\circ}$.

$$\triangle J \cong \triangle E$$

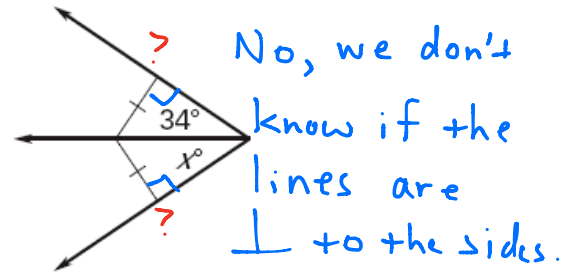
Decide whether the value of x can be determined. If yes, find the value of x . If no, explain why it cannot be determined.

26.



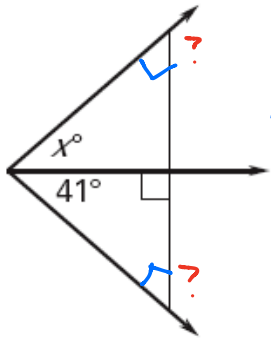
Yes, $x=9$

27.



No, we don't know if the lines are \perp to the sides.

28.



No, we don't know if the lines are \perp to the sides.