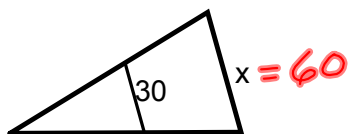
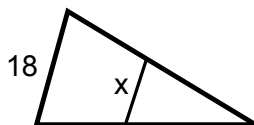


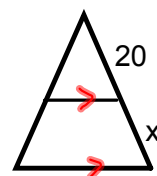
Find x.



1. $x = 60$

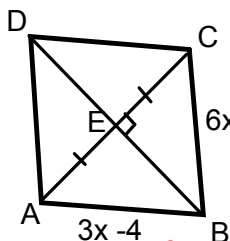


2. $x = 9$



3. $x = 20$

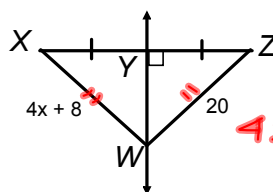
Find AB.



4. $AB = 5$

$$\begin{aligned} 3x - 4 &= 6x - 13 \\ -3x & \quad -3x \\ -4 &= 3x - 13 \\ +13 & \quad +13 \\ 9 &= 3x \\ 3 & \quad 3 \\ 3 &= x \end{aligned}$$

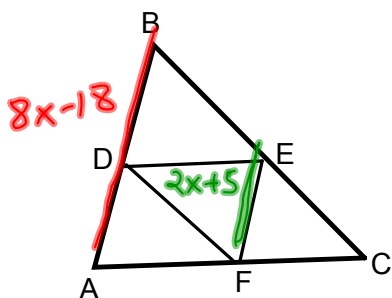
Find x



5. $x = 3$

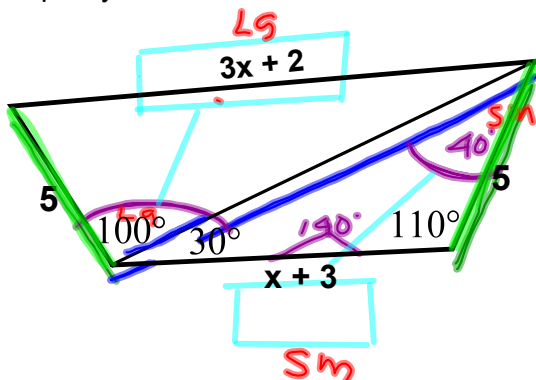
$$\begin{aligned} 4x + 8 &= 20 \\ -8 & \quad -8 \\ 4x &= 12 \\ 4 & \quad 4 \\ x &= 3 \end{aligned}$$

6. Find AB and EF when $AB = 8x - 18$ and $EF = 2x + 5$



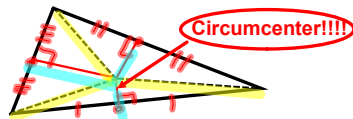
$$\begin{aligned} AB &= 8(7) - 18 = 38 \\ EF &= 2(7) + 5 = 19 \\ 8x - 18 &= 2(2x + 5) \\ 8x - 18 &= 4x + 10 \\ -4x & \quad -4x \\ 4x - 18 &= 10 \\ +18 & \quad +18 \\ 4x &= 28 \\ 4 & \quad 4 \\ x &= 7 \end{aligned}$$

7. Use the Hinge Theorem or its converse and properties of triangles to write and solve an inequality to describe a restriction on the value of x.



$$\begin{aligned} 3x + 2 &> x + 3 \\ -x & \quad -x \\ 2x + 2 &> 3 \\ -2 & \quad -2 \\ x &> \frac{1}{2} \end{aligned}$$

8. If the solid lines are Perpendicular Bisectors then the dotted lines are ALL 21.
9. If the Point of Concurrence is a CENTROID then the length from any vertex to the centroid is $\frac{2}{3}$ of the entire line length.

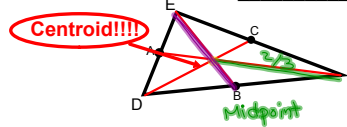


What do points A, B, and C represent?

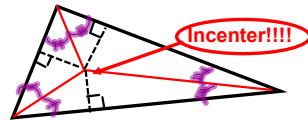
Midpoints

Line EB is a Median

What is the PURPOSE OF A CENTROID? "CENTER OF GRAVITY"

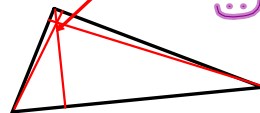


10. If the solid lines are Angle Bisectors then the dotted lines are ALL 22.



11. The Point of Concurrence of ALL the ALTITUDES is the Orthocenter.

It's purpose is Nothing!



12. Describe the possible lengths of the third side of the triangle given the lengths of the other two sides.

13, 7, 6 $< x <$ 20

Sm Lg

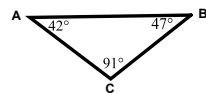
State if the three sides can be the measures of the sides of a triangle. Explain.

13. 2, 8, 10
 $10 > 10$
NO! \triangle

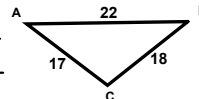
14. 4, 9, 12
 $13 > 12$
YES! \triangle

15. 3, 9, 5
 $8 > 9$ NO! \triangle

List the sides and angles from SMALLEST to LARGEST.



16. Sides: BC
AC
AB



17. Angles: $\angle B$
 $\angle A$
 $\angle C$

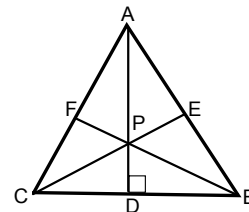
P is the CENTROID of triangle ABC, AP = 24, EP = 16, and BF = 60. Find the length of the segments.

18. AD = $24 + 12 = 36$

19. CP = $16 \cdot 2 = 32$

20. FP = $60 \cdot \frac{1}{3} = 20$

21. CD = 29.7



Work for Problem 21:

$$a^2 + b^2 = c^2$$

$$a^2 + 12^2 = 32^2$$

$$a^2 + 144 = 1024$$

$$a^2 = 880$$

$$a \approx 29.7$$