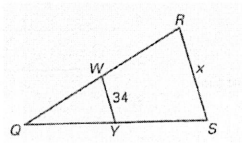
Geometry- Mrs. Tilus
Unit 5 Review

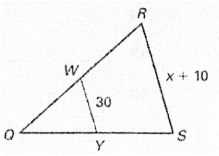
Name: _____

In the diagrams below, W is the midpoint of $\overline{QR}$ and Y is the midpoint of $\overline{QS}$. Find the value of x

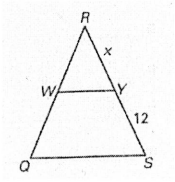
1. $\overline{WY}$ is called a midsegment of $\triangle QRS$.

2. 

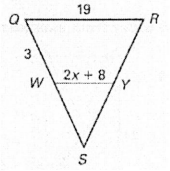
X = 68units

3. 

2(30) = X + 10
60 = X + 10
-10 -10
50units = X

4. 

X = 12units

5. 

2(2x+8) = 19
4x + 16 = 19
-16 -16
4x = 3
4 4
x = 3/4

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

6. $\overline{JL} \parallel$ $\overline{RS}$

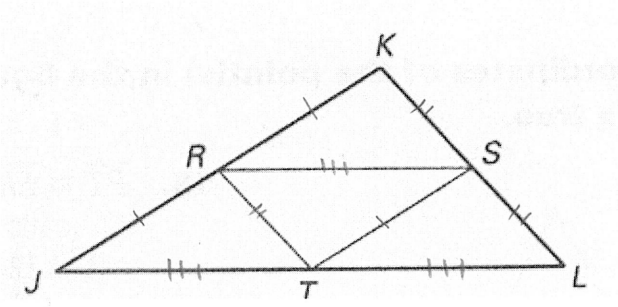
7. $\overline{ST} \parallel$ $\overline{KJ}$

8. $\overline{RT} \parallel$ $\overline{LK}$

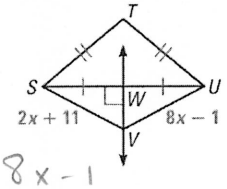
9. $\overline{KR} \cong$ $\overline{RJ}$ $\cong$ $\overline{ST}$

10. $\overline{KS} \cong$ $\overline{SL}$ $\cong$ $\overline{RT}$

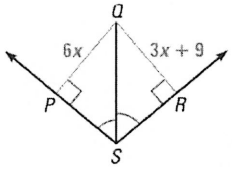
11. $\overline{RS} \cong$ $\overline{JT}$ $\cong$ $\overline{TL}$



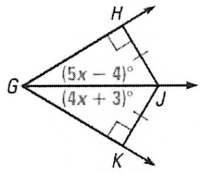
Find the value of x. Explain your reasoning,

12. 

2x + 11 = 8x - 1
-2x +1 -2x +1
12 = 6x
6 6
x = 2
(⊥ bisector Thm)

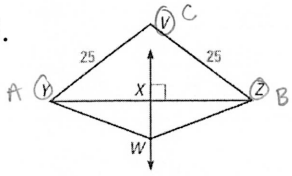
13. 

6x = 3x + 9
-3x -3x
3x = 9
3 3
x = 3
(Angle Bisector Thm)

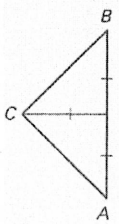
14. 

5x - 4 = 4x + 3
-4x +4 -4x +4
x = 7
(Angle Bisector Thm)

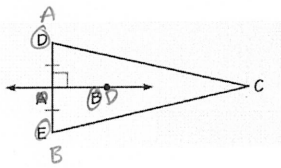
Tell whether the information in the diagram allows you to conclude that C is on the perpendicular bisector of $\overline{AB}$.

15. 

Yes; AC = BC

16. 

NO; need to know that AC = BC

17. 

NO; need to know that AC = BC

18. Fill in the blanks

The three **medians** of a triangles meet at the Centroid

The three **perpendicular bisectors** of a triangles meet at the circumcenter

The three **angle bisectors** of a triangles meet at the incenter

The three **altitudes** of a triangles meet at the orthocenter

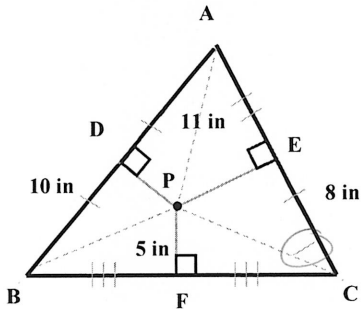
The **incenter** is the point of concurrency of angle bisectors

The **orthocenter** is the point of concurrency of altitudes

The **circumcenter** is the point of concurrency of perpendicular bisectors

The **centroid** is the point of concurrency of medians

Use the diagram below to answer questions 19-24



19. $\overline{DP}, \overline{EP}, \overline{FP}$ are called Perpendicular Bisectors

20. What is point P called? circumcenter

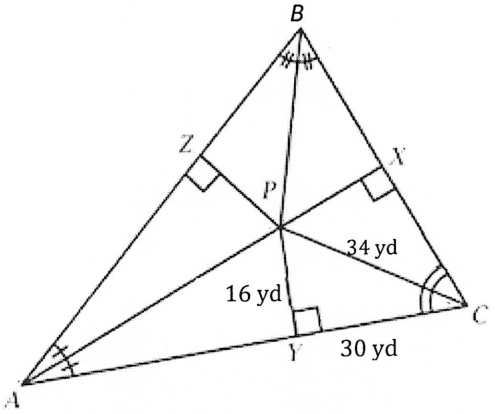
21. $CP =$ 11in

22. $AD =$ 10in

23. $AC =$ 16 in

24. $BP =$ 11in

Use the figure below to answer questions

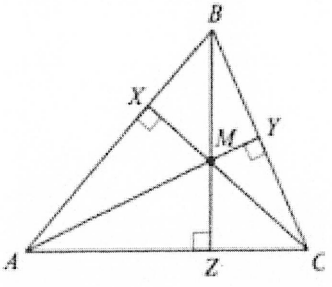


25. $\overline{AP}, \overline{BP}, \overline{CP}$, are called Angle Bisectors

26. What is point P called? incenter

27. $PX =$ 16 yd

Use the figure below to answer 28 and 29.

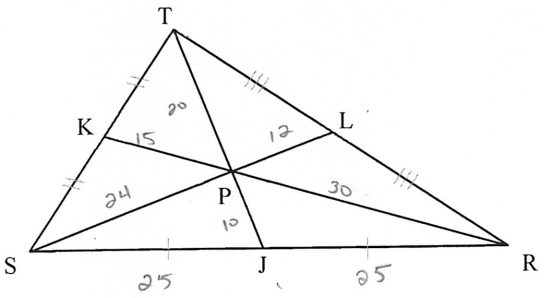


28. $\overline{BZ}, \overline{AY}, \overline{CX}$, are called Altitude

29. What is point M called? orthocenter

15

In the diagram below, $LS = 36\ cm$, $TP = 20\ cm$, $KP = 10\ cm$ and $JR = 25\ cm$.



30. $\overline{SL}, \overline{TJ}, \overline{RK}$ are called medians

31. What is Point P called? Centroid

32. $PL =$ 12 cm

33. $PS =$ 24 cm

34. $TJ =$ 30 cm

35. $PJ =$ 10 cm

36. $JS =$ 25 cm

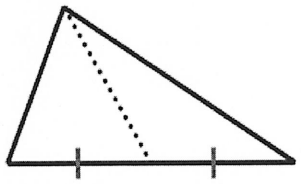
37. $RS =$ 50 cm

38. $PR =$ 30 cm

39. $KR =$ 45 cm

Given the following pictures and markings identify if the dotted line is a(n) Midsegment, Angle Bisector,Perpendicular Bisector, Altitude or Median **List All the Apply!**

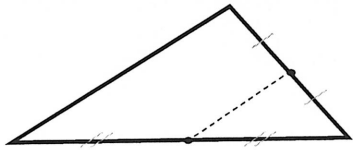
40.



Median

(connects angle and the opposite side @ its midpoint)

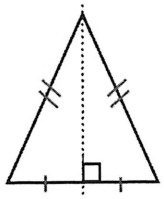
41.



Midsegment

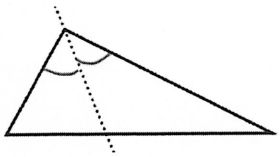
(connects the midpoints of two sides of a triangle)

42.



All Apply

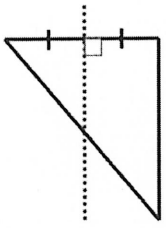
43.



Angle Bisector

(Divides an angle in half)

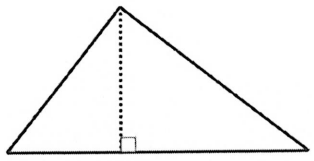
44.



Perpendicular Bisector

(Divides a side in half @ a 90° angle)

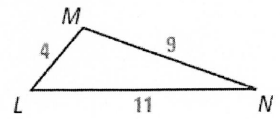
45.



Altitude

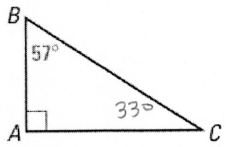
(connects an angle and the opposite side @ a 90° angle)

List the sides **and** the angles in order from smallest to largest.

46. 

$\angle N, \angle L, \angle M$

$\overline{LM}, \overline{MN}, \overline{NL}$

47. 

$\angle C, \angle B, \angle A$

$\overline{AB}, \overline{CA}, \overline{BC}$

Is it possible to construct a triangle with the given side lengths? If not, explain why.

48. 46, 14, 60

$14+46 = 60 \not> 60$

No.

49. 4, 7, 13

$4+7 = 11 \not> 13$

No.

50. 8, 15, 9

$8+9 = 17 > 15$

Yes

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

51. 5 inches, 6 inches

$6-5$ $\quad$ $6+5$

$1\text{ in} < x < 11\text{in}$

52. 14 feet, 21 feet

$21-14$ $\quad$ $21+14$

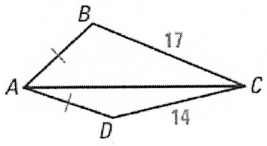
$7\text{ ft} < x < 35\text{ft}$

53. 10 feet, 5 yards → 15 feet

$15-10$ $\quad$ $15+10$

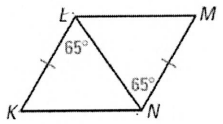
$5\text{ ft} < x < 25\text{ft}$

Complete with $<, >$ or $=$. Justify your answer.

54. 

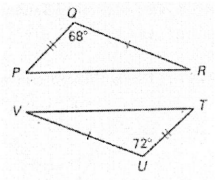
$m\angle BAC \_\_>\_\_ m\angle DAC$

Converse Hinge Thm

55. 

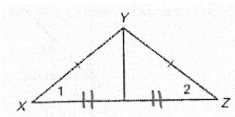
$LM \_\_=\_\_ KN$

Hinge Thm

56. 

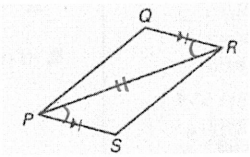
$PR \_\_<\_\_ VT$

Hinge Thm

57. 

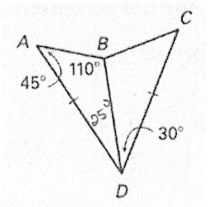
$m\angle 1 \_\_=\_\_ m\angle 2$

Converse Hinge Thm

58. 

$PQ \_\_=\_\_ SR$

Hinge Thm

59. 

$AB \_\_<\_\_ BC$

Hinge Thm