Name_____ Date_____ Class Period_____

Point of Concurrency Worksheet

Give the name the point of concurrency for each of the following.

1. Angle Bisectors of a Triangle   _____

2. Medians of a Triangle   _____

3. Altitudes of a Triangle   _____

4. Perpendicular Bisectors of a Triangle   _____

Complete each of the following statements.

5. The *incenter* of a triangle is equidistant from the _____ of the triangle.

6. The *circumcenter* of a triangle is equidistant from the _____ of the triangle.

7. The *centroid* is _____ of the distance from each vertex to the midpoint of the opposite side.

8. To *inscribe* a circle about a triangle, you use the _____

9. To *circumscribe* a circle about a triangle, you use the _____

10. **Complete the following chart. Write if the point of concurrency is _inside_, _outside_, or _on the triangle_.**

|	**Acute Δ**	**Obtuse Δ**	**Right Δ**
Circumcenter			
Incenter			
Centroid			
Orthocenter			

In the diagram, the perpendicular bisectors (shown with dashed segments) of ΔABC meet at point G--the *circumcenter*. and are shown dashed. Find the indicated measure.
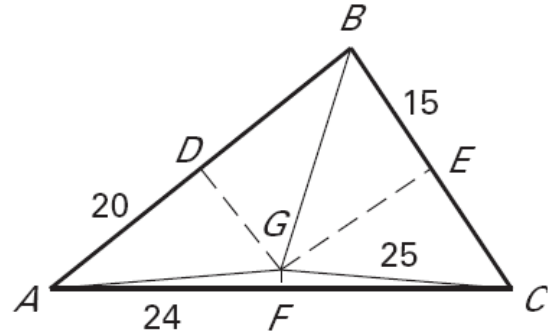
11. AG = _____   12. BD = _____

13. CF = _____   14. AB = _____

15. CE = _____   16. AC = _____

17. m∠ADG = _____

18. IF BG = (2x − 15), find x.

x = _____

In the diagram, the perpendicular bisectors (shown with dashed segments) of ΔMNP meet at point O—the *circumcenter*.   Find the indicated measure.
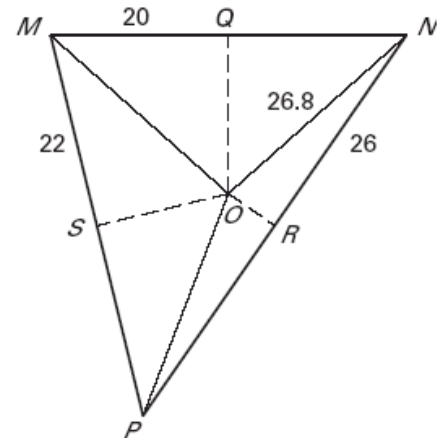
19. MO = _____   20. PR = _____

21. MN = _____   22. SP = _____

23. m∠MQO = _____

24. If OP = 2x, find x.

x = _____

Point *T* is the _incenter_ of △*PQR*.

25. If Point T is the **incenter**, then Point T
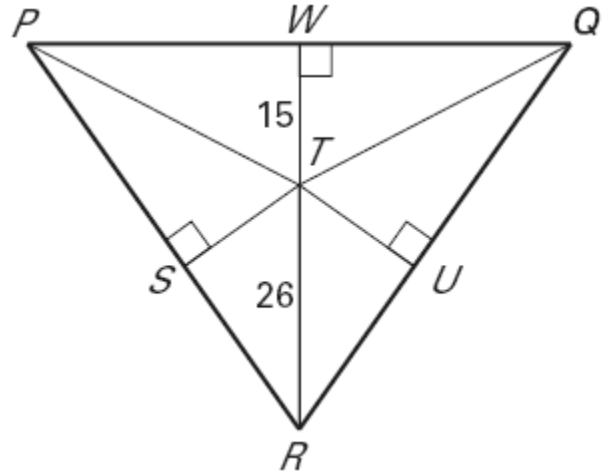   is the point of concurrency of

    the _____.

26. ST = _____

27. If TU = (2x − 1), find x.

    x = _____

28. If m∠PRT = 24°, then m∠QRT = _____

29. If m∠RPQ = 62°, then m∠RPT = _____

**Point *G* is the _centroid_ of △ *ABC*, *AD* = 8, *AG* = 10, *BE* = 10, *AC* = 16 and
CD = 18. Find the length of each segment.**

30. If Point G is the **centroid**, then Point T
    is the point of concurrency of
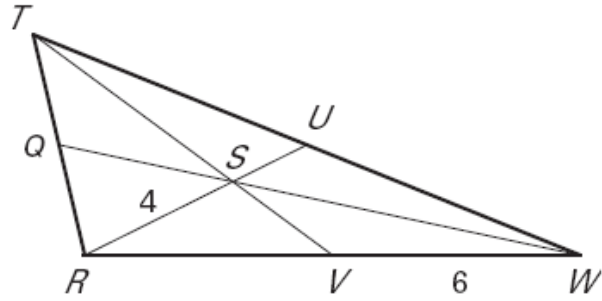
    the _____.

31. DB = _____   32. EA = _____

33. CG = _____   34. BA = _____

35. GE = _____   36. GD = _____

37. BC = _____   38. AF = _____
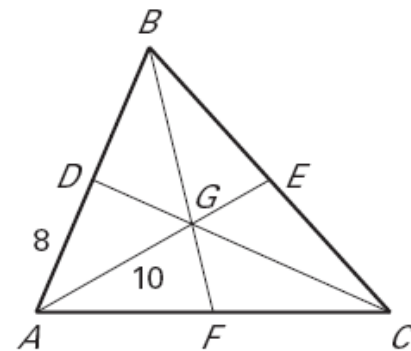
Point S is the _centroid_ of △RTW, RS = 4, VW = 6, and TV = 9. Find the length of each segment.

39. RV = _____

40. SU = _____

41. RU = _____
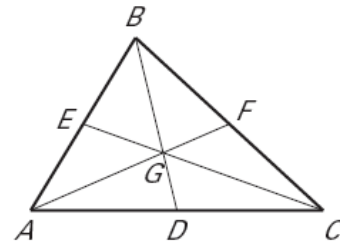
42. RW = _____

43. TS = _____

44. SV = _____

Point G is the centroid of △ ABC. Use the given information to find the value of the variable.
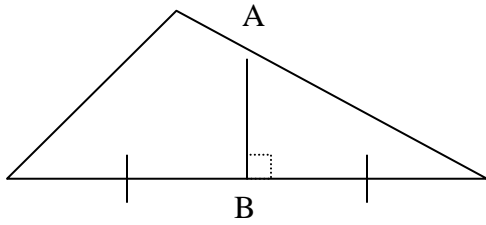
45. FG = x + 8 and GA = 6x − 4

x = _____

46. If CG = 3y + 7 and CE = 6y

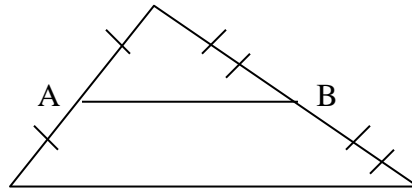y = _____

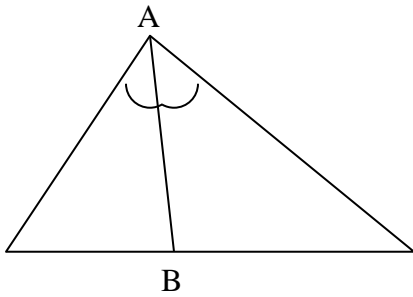**Is segment AB a _midsegment, perpendicular bisector_, _angle bisector_, _median_, _altitude_, or _none of these_?**
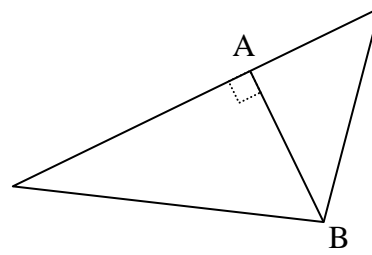
47)

_____

48)

_____

49)

_____

50)

_____

51)

_____

52)

_____