Homework 6.4: Centers of Triangles Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 3



5. The three medians of a triangle intersect at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. The three perpendicular bisectors of a triangle intersect at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7. The three angle bisectors of a triangle intersect at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**In the diagram, the perpendicular bisectors (shown with dashed segments) of** Δ***ABC* meet at point *G--*the *circumcenter*.and are shown dashed. Find the indicated measure.**

8. AG = \_\_\_\_\_\_\_\_\_\_ 9. BD = \_\_\_\_\_\_\_\_\_\_ 10. CF = \_\_\_\_\_\_\_\_\_\_

11. AB = \_\_\_\_\_\_\_\_\_\_ 12. CE = \_\_\_\_\_\_\_\_\_\_ 13. AC = \_\_\_\_\_\_\_\_\_\_

14. m∠ADG = \_\_\_\_\_\_\_\_\_\_

15. IF BG = (2x – 15), find x = \_\_\_\_\_\_\_\_\_\_.

**Point *T* is the *incenter* of Δ*PQR.***

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

the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

17. ST = \_\_\_\_\_\_\_\_\_\_

18. If TU = (2x – 1), find x = \_\_\_\_\_\_\_\_.

19. If m∠PRT = 24º, then m∠QRT = \_\_\_\_\_\_\_\_\_\_

20. If m∠RPQ = 62º, then m∠RPT = \_\_\_\_\_\_\_\_\_\_

**In the diagram, the perpendicular bisectors (shown with dashed segments) of *MNP* meet at point *O***—**the *circumcenter***.  **Find the indicated measure.**

21. MO = \_\_\_\_\_\_\_\_\_\_ 22. PR = \_\_\_\_\_\_\_\_\_\_ 23. MN = \_\_\_\_\_\_\_\_\_\_

24. SP = \_\_\_\_\_\_\_\_\_\_ 25. m∠MQO = \_\_\_\_\_\_\_\_\_\_

26. If OP = 2x, find x = \_\_\_\_\_\_\_\_.

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

******27. If Point G is the ***centroid***, then Point G is the point of concurrency of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

28. DB = \_\_\_\_\_\_\_\_\_\_ 29. EA = \_\_\_\_\_\_\_\_\_\_ 30. CG = \_\_\_\_\_\_\_\_\_\_

31. BA = \_\_\_\_\_\_\_\_\_\_ 32. GE = \_\_\_\_\_\_\_\_\_\_ 33. GD = \_\_\_\_\_\_\_\_\_\_

34. BC = \_\_\_\_\_\_\_\_\_\_ 35. AF = \_\_\_\_\_\_\_\_\_\_

***Point S* isthe *centroid* of** Δ***RTW, RS =* 4, *VW =* 6, and *TV=* 9. Find the length of each segment.**

36. RV = \_\_\_\_\_\_\_\_\_\_ 37. SU = \_\_\_\_\_\_\_\_\_\_

38. RU = \_\_\_\_\_\_\_\_\_\_ 39. RW = \_\_\_\_\_\_\_\_\_\_

40. TS = \_\_\_\_\_\_\_\_\_\_ 41. SV = \_\_\_\_\_\_\_\_\_\_

**Point *G* is the centroid of** ∆ ***ABC.* Use the given information to find the value of the variable*.***

42. Find x if FG = x + 8 and GA = 6x – 4

43. Find y if CG = 3y + 7 and CE = 6y