

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 _____

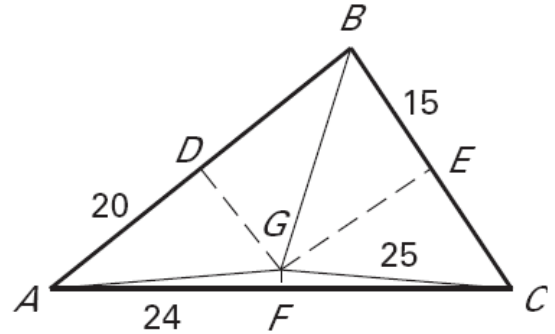
Complete each of the following statements.

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 $\triangle ABC$ meet at point G —the circumcenter. and are shown dashed. Find the indicated measure.

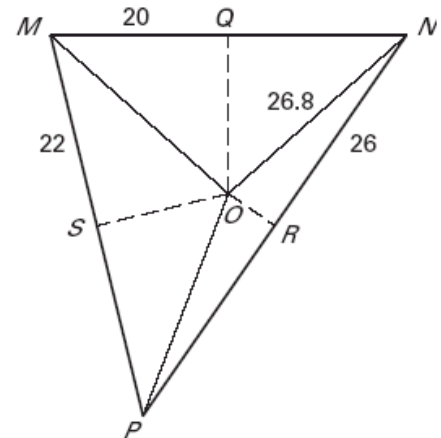
11. $AG =$ _____ 12. $BD =$ _____
 13. $CF =$ _____ 14. $AB =$ _____
 15. $CE =$ _____ 16. $AC =$ _____
 17. $m\angle ADG =$ _____
 18. If $BG = (2x - 15)$, find x .



$x =$ _____

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

19. $MO =$ _____ 20. $PR =$ _____
 21. $MN =$ _____ 22. $SP =$ _____
 23. $m\angle MQO =$ _____
 24. If $OP = 2x$, find x .



$x =$ _____

Point T is the incenter of $\triangle PQR$.

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

the _____.

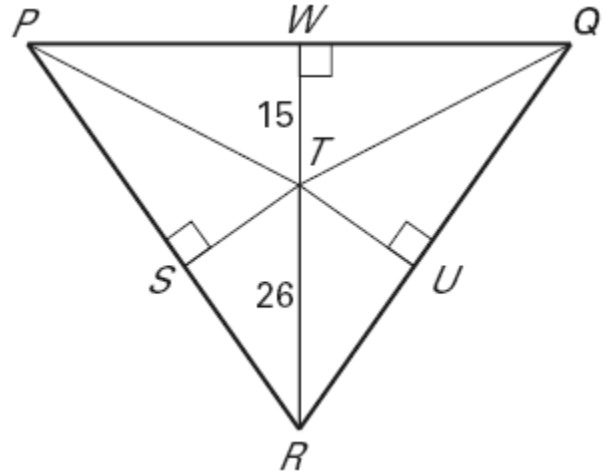
26. $ST =$ _____

27. If $TU = (2x - 1)$, find x .

$x =$ _____

28. If $m\angle PRT = 24^\circ$, then $m\angle QRT =$ _____

29. If $m\angle RPQ = 62^\circ$, then $m\angle RPT =$ _____



Point G is the centroid of $\triangle ABC$, $AD = 8$, $AG = 10$, $BE = 10$, $AC = 16$ 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

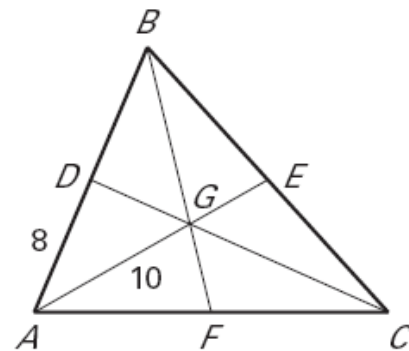
the _____.

31. $DB =$ _____ 32. $EA =$ _____

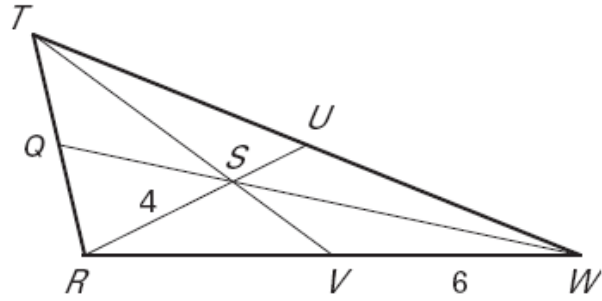
33. $CG =$ _____ 34. $BA =$ _____

35. $GE =$ _____ 36. $GD =$ _____

37. $BC =$ _____ 38. $AF =$ _____



Point S is the centroid of $\triangle RTW$, $RS = 4$, $VW = 6$, and $TV = 9$. Find the length of each segment.



39. $RV =$ _____

40. $SU =$ _____

41. $RU =$ _____

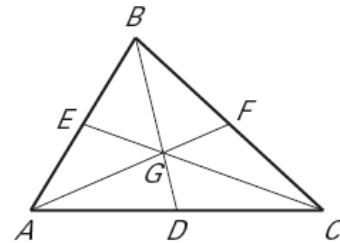
42. $RW =$ _____

43. $TS =$ _____

44. $SV =$ _____

Point G is the centroid of $\triangle ABC$. Use the given information to find the value of the variable.

45. $FG = x + 8$ and $GA = 6x - 4$



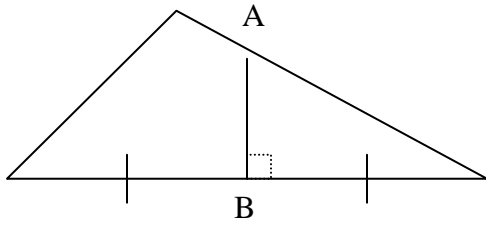
$x =$ _____

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

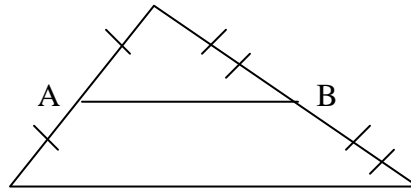
$y =$ _____

Is segment AB a midsegment, perpendicular bisector, angle bisector, median, altitude, or none of these?

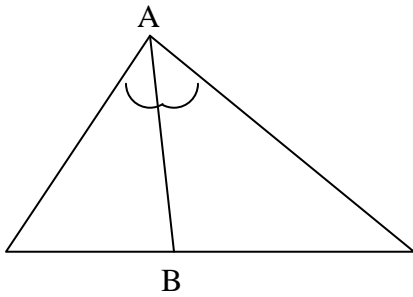
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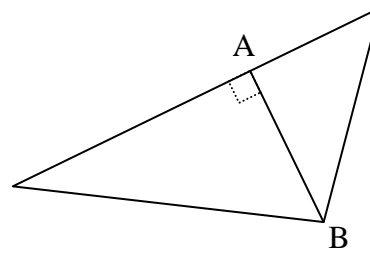
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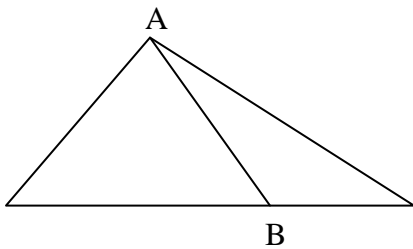
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50)



51)



52)

