Name: _____ Date: _____ Period: _____

6.3 Medians and Altitudes of Triangles CYU

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

G *Use when you completed the problem in a group*

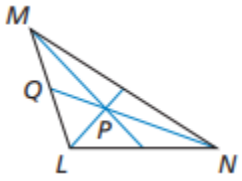
X *Use when a question was attempted but wrong (get help)*

N *Use when a question was not even attempted*

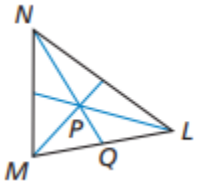
CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Properties of the centroid of a triangle	1 – 4, 9 - 12	5 - 8	13 – 16
Location of the orthocenter	17 – 20		
Sketching special segments and their POC's	21	22	
Sometimes, Always, or Never			23 – 28
Critical thinking			29

1 – 4: Point P is the centroid of ΔLMN. Find PN and QP.

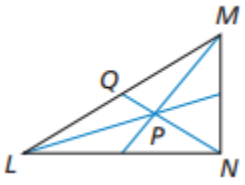
1. QN = 9



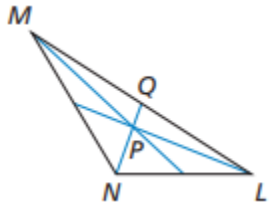
2. QN = 21



3. QN = 30

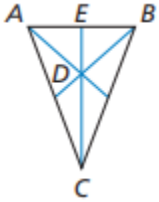


4. QN = 42

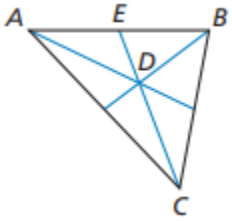


5 – 8: Point D is the centroid of ΔABC. Find CD and CE.

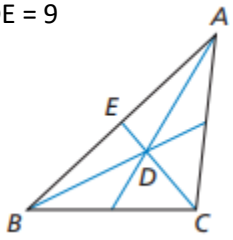
5. DE = 5



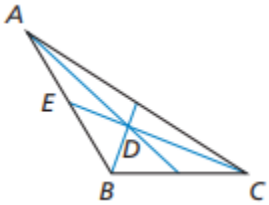
6. DE = 11



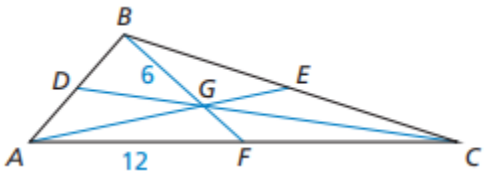
7. DE = 9



8. DE = 15



9 – 12: Use the diagram to answer the following four questions, point G is the centroid of ΔABC. BG = 6, AF = 12, and AE = 15. Find the length of the segment.



9. $\overline{FC}$

10. $\overline{BF}$

11. $\overline{AG}$

12. $\overline{GE}$

13 – 18: Find the coordinates of the centroid of the triangle with given vertices.

13. A(2, 3), B(8, 1), C(5, 7)

14. F(1, 5), G(- 2, 7), H(- 6, 3)

15. S(5, 5), T(11, - 3), U(- 1, 1)

16. X(1, 4), Y(7, 2), Z(2, 3)

17 - 20: Tell whether the orthocenter is INSIDE, ON, or OUTSIDE the triangle. Then find the coordinates of the orthocenter. Sketch a visual.

17. L(0, 5), M(3, 1), N(8, 1)

18. X(- 3, 2), Y(5, 2), Z(- 3, 6)

19. A(- 4, 0), B(1, 0), C(- 1, 3)

20. T(- 2, 1), U(2, 1), V(0, 4)

21 – 22: Draw the indicated triangle with the special segments to show the location of the POC indicated.

21. isosceles right triangle: centroid

22. Obtuse scalene triangle: orthocenter

23 – 28: SOMETIMES, ALWAYS, or NEVER. Explain your reasoning by providing a counterexample if it is NOT an always.

23. The centroid is ___ on the triangle.

24. The orthocenter is ___ outside the triangle.

25. A median is ___ the same line segment as a perpendicular bisector.

26. An altitude is ___ the same line segment as an angle bisector.

27. The centroid and orthocenter are ___ the same point.

28. The centroid is ___ formed by the intersection of the three medians.

29. **CRITICAL THINKING:** In what type(s) of triangles can a vertex be one of the points of concurrency (POC) of the triangle? Explain your reasoning.

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yours elf.