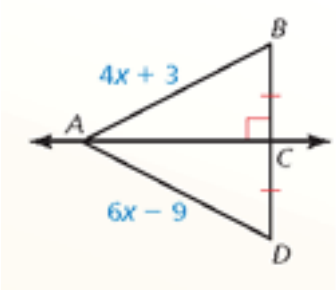
Name:_____ Date:_____ Band:_____
Geometry

Unit 5 Relationships Within Triangles Study Guide

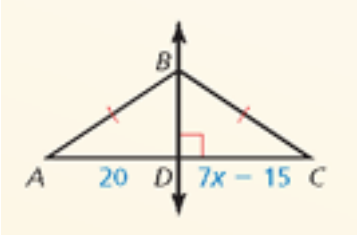
6.1 Perpendicular and Angle Bisectors

1. Find AD.

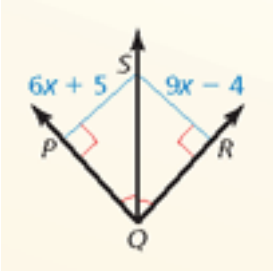


Find the indicated measure. Explain your reasoning.

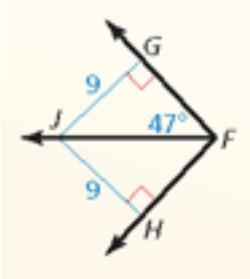
2. DC



3. RS

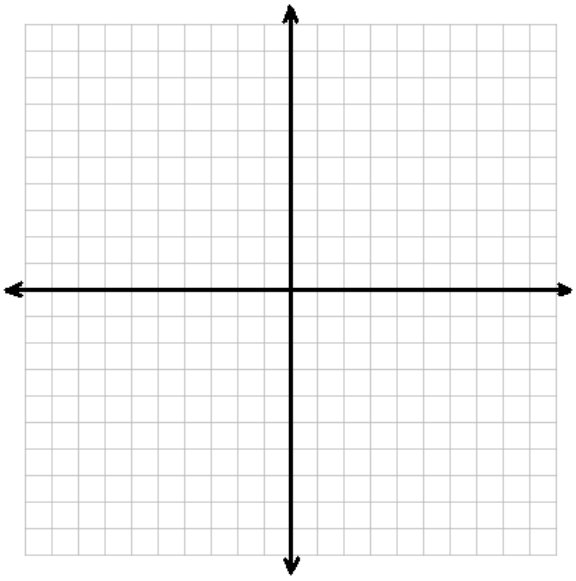


4. $m\angle JFH$



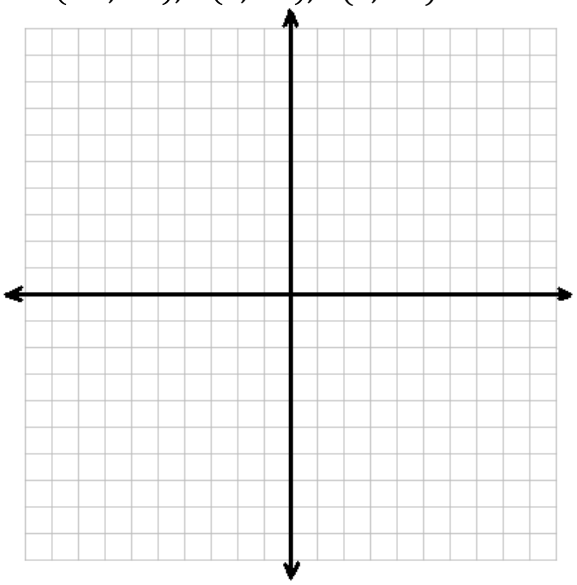
6.2 Bisectors of Triangles

5. Find the coordinates of the circumcenter of ΔQRS with vertices $Q(3,3)$, $R(5,7)$, and $S(9,3)$.

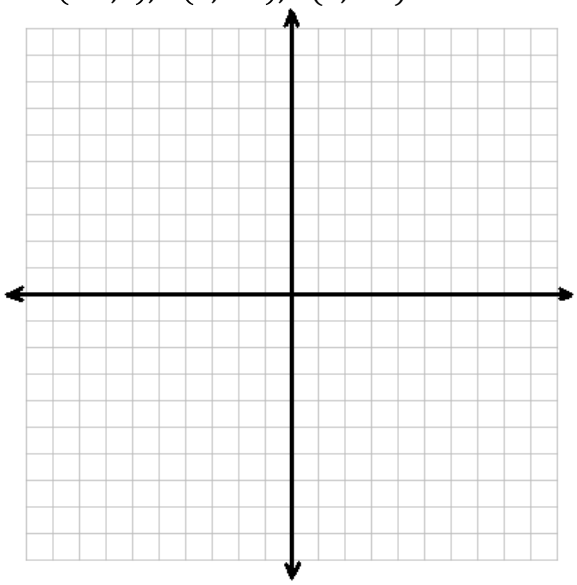


Find the coordinates of the circumcenter of the triangle with the given vertices.

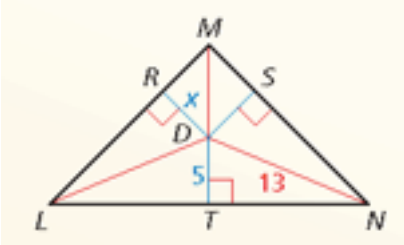
6. $T(-6,-5), U(0,-1), V(0,-5)$



7. $X(-2,1), Y(2,-3), Z(6,-3)$

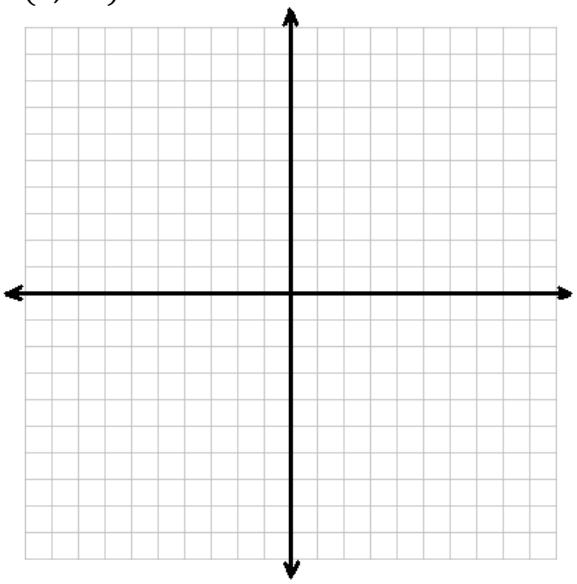


8. Point D is the incenter of ΔLMN. Find the value of x.



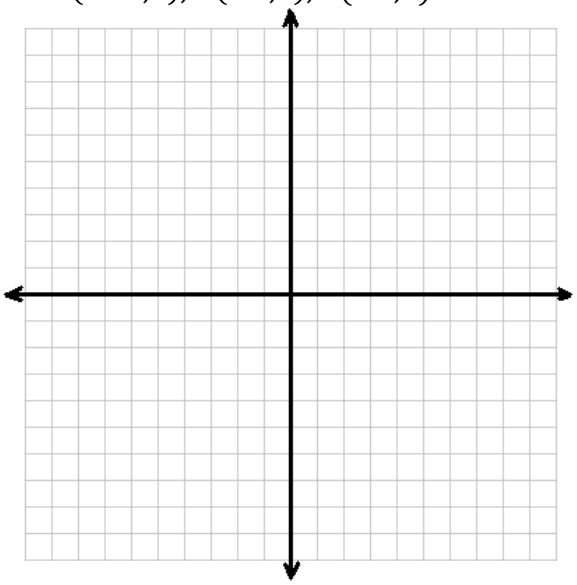
<u>6.3 Medians and Altitudes of Triangles</u>

9. Find the coordinates of the centroid of ΔTUV with vertices $T(1,-8), U(4,-1)$, and $V(7,-6)$.

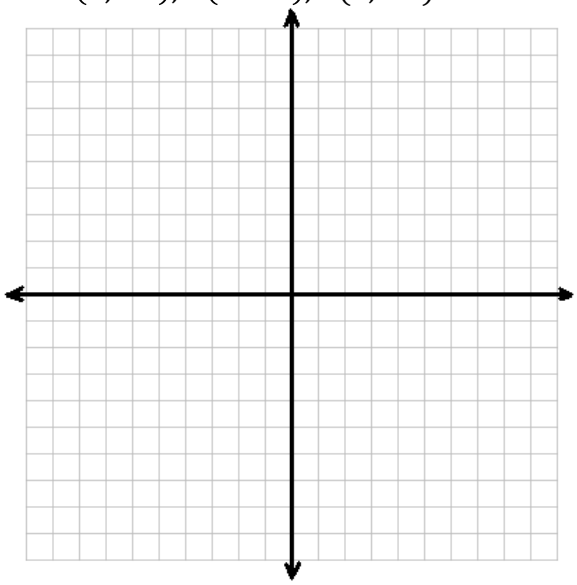


Find the coordinates of the centroid of the triangle with the given vertices.

10. $A(-10,3), B(-4,5), C(-4,1)$

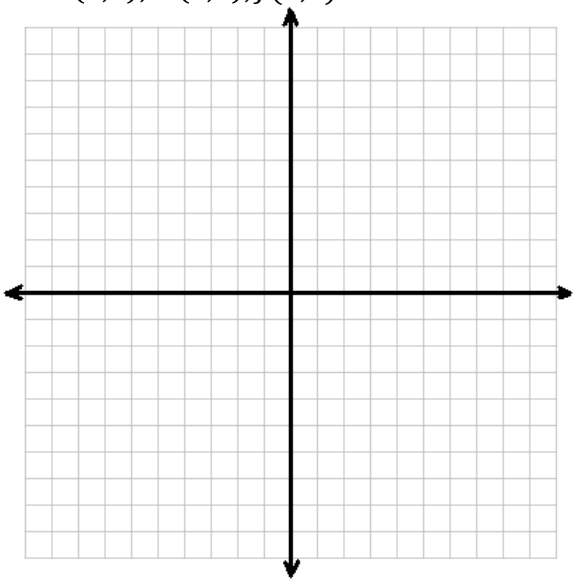


11. $D(2,-8), E(2-2), F(8,-2)$

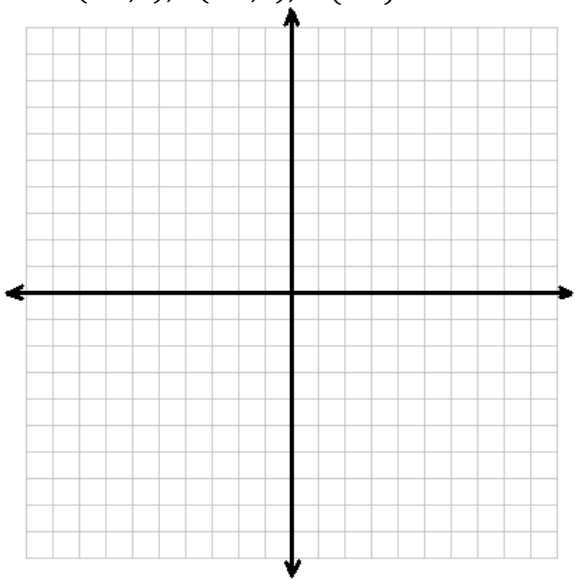


Tell whether the orthocenter of the triangle with the given vertices is *inside, on,* or *outside* the triangle. Then find the coordinates of the orthocenter.

12. $G(1,6), H(5,6), J(3,1)$

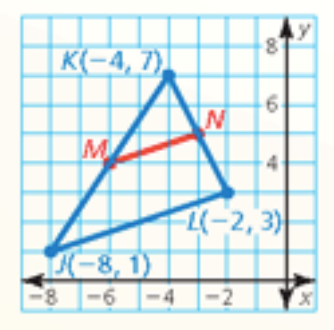


13. $K(-8,5), L(-6,3), M(0.5)$



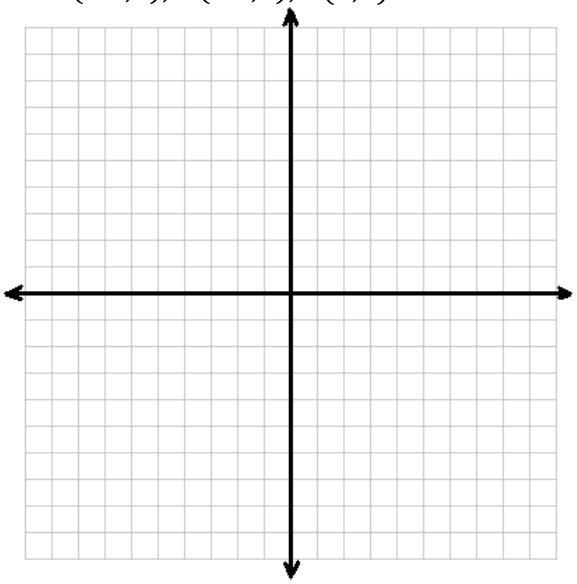
6.4 The Triangle Midsegment Theorem

14. In ΔJKL, show that midsegment $\overline{MN}$ is parallel to $\overline{JL}$ and that $MN = \frac{1}{2}JL$.

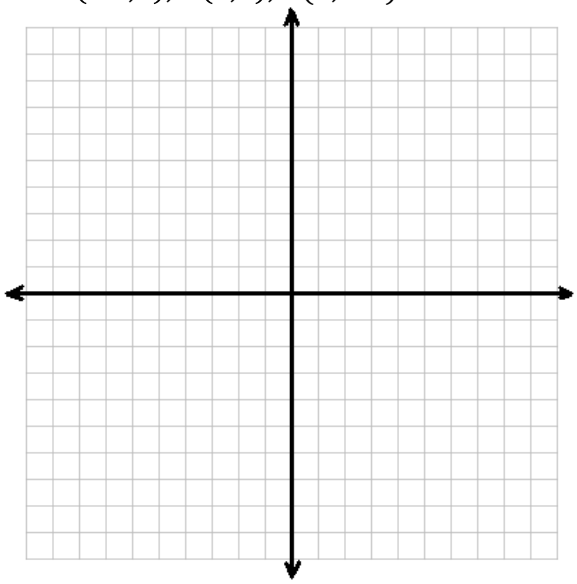


Find the coordinates of the vertices of the midsegment triangle for the triangle with the given vertices.

15. $A(-6,8), B(-6,4), C(0,4)$

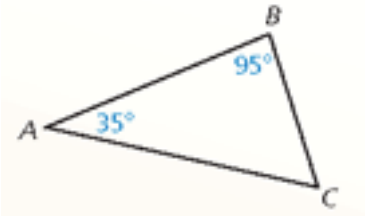


16. $D(-3,1), E(3,5), F(1,-5)$

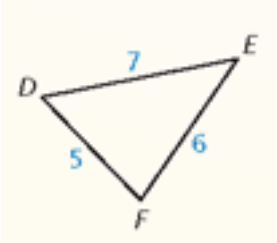


6.5 Inequalities in One Triangle

17. List the sides of ΔABC in order from shortest to longest.



18. List the angles of ΔDEF in order from smallest to largest.



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

19. 4 inches, 8 inches

20. 6 meters, 9 meters

21. 11 feet, 18 feet