

Geometry
Lesson 5.3 Notes

The _____ of a triangle is a segment whose endpoints are the vertex of the triangle and the midpoint of the opposite side.

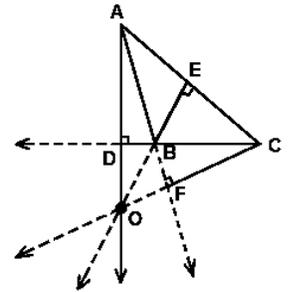
The _____ of a triangle is the intersection of the medians of the triangle. This is also the center of gravity.

Centroid Theorem: The centroid of a triangle is located _____ of the distance from each vertex to the midpoint of the opposite side.

The _____ of a triangle is a perpendicular segment from a vertex to the opposite side.

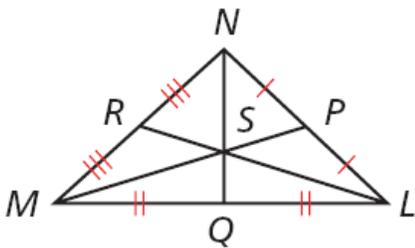
(AKA “_____”)

The _____ of a triangle is the intersection of the three altitudes of the triangle.



Examples:

- In $\triangle LMN$, $RL = 21$ and $SQ = 4$. Identify the vocabulary term for point S. Find LS and NQ.



Notes: Using Coordinates to find the circumcenter, orthocenter, and centroid.

1. The circumcenter is where the _____ of the sides of the triangles meet.
2. To find the circumcenter of a triangle on a graph, follow the steps below...
 - a. Plot the points on a graph.
 - b. Find the equation of the perpendicular bisector of one side of the triangle.
 - i. Point: _____
 - ii. Slope: _____
 - iii. Plug the values into _____
 - iv. Write the equation in slope intercept form _____
 - c. Repeat the steps above to find the perpendicular bisector of another side of the triangle.
 - d. Solve the system of equations using the equation from step b and c.

**If the triangle is a RIGHT triangle, then the circumcenter is simply the _____ of the _____.
3. Example: Find the circumcenter of the triangle with vertices A(0, 2), B(4, 8), and C(4, -2). Do on graph paper.
4. A median is a segment that goes from a _____ of a triangle to the _____ of the opposite side.
5. The _____ is the point of concurrency of the medians of a triangle.
6. To find the centroid of a triangle on a graph, follow the steps below...
 - a. Plot the points on a graph
 - b. Find the equation of one of the medians of the triangle.
 - i. Point: _____
 - ii. Slope: _____
 - iii. Plug the values into _____
 - iv. Write the equation in slope intercept form _____
 - c. Repeat steps above to find another median of the triangle.
 - d. Solve the system of equations using the equation from step b and c.
7. Example: Find the centroid of a triangle with vertices X(8, -1), Y(2, 7) and Z(5, -3). Do on graph paper.
8. An _____ is a segment in a triangle that starts at the vertex and is _____ to the opposite side.
9. The point of concurrency of the altitudes is called the _____.
10. To find the orthocenter on a graph, follow the steps below...
 - a. Plot the points on a graph.
 - b. Find the equation of one of the altitudes.
 - i. Point: _____
 - ii. Slope: _____
 - iii. Plug the values into _____
 - iv. Write the equation in slope intercept form: _____
 - c. Repeat steps above to find another altitude of the triangle.
 - d. Solve the system of equations using the equations from step b and c.
11. Example: Find the orthocenter of a triangle with vertices P(-5, 8), Q(4, 5) and R(-2, 5). Do on graph paper.