# Lesson 6.3 Medians of Triangles

Wednesday, February 8, 2023 7:50 PM

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https://app.peardeck.com/student/tugmcakxy

6.3
Medians

## Lesson 6.3
## Medians of Triangles
## Workbook pages 361-363

**Content Objective**
Students solve problems using medians in triangles.



## Florida's B.E.S.T. Standards for Mathematics

**MA.912.GR.1.3** Prove relationships and theorems about triangles. Solve mathematical and real-world problems involving postulates, relationships and theorems of triangles.

**MA.912.GR.3.3** Use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.

## Learn
### Medians of Triangles

midpoint (middle)

In a triangle, a **median** is a line segment with endpoints that are a vertex of the triangle and the midpoint of the side opposite the vertex.

$\frac{x_1 + x_2}{2}$

Every triangle has three medians that are concurrent. The point of concurrency of the medians of a triangle is called the **centroid**, and it is always inside the triangle.

Center of gravity

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**Click the link below to complete the Geogebra Investigation.**

**Graph the following points: (0,3) (4,1) (2,5) to learn about the centroid properties.**

Students browse: https://www.geogebra.org/classic

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## Learn
### Medians of Triangles

## Centroid Theorem

The medians of a triangle intersect at a point called the centroid that is two-thirds of the distance from each vertex to the midpoint of the opposite side.

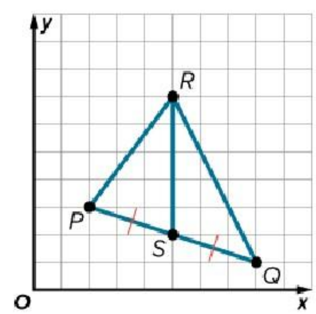
All polygons have a balancing point or *center of gravity*. This is the point at which the weight of a region is evenly dispersed and all sides of the region are balanced. The centroid is the center of gravity for a triangular region.



## Learn
Medians of Triangles

### Think About It!

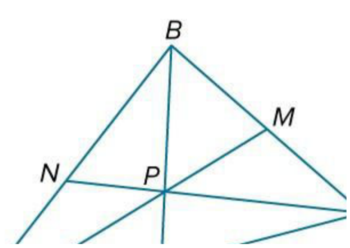
How could you find the coordinates of the centroid of $\triangle PQR$?






## Example 1
Use the Centroid Theorem

**In $\triangle ABC$, $P$ is the centroid and $BL = 6$. Find $BP$ and $PL$.**

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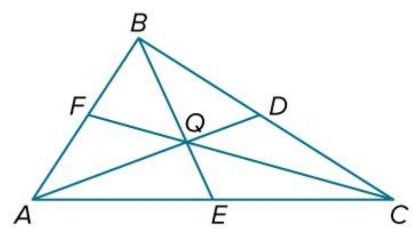
## Example 1
Use the Centroid Theorem

### Check

In $\triangle ABC$, $Q$ is the centroid and $BE = 9$. Find $BQ$ and $QE$.

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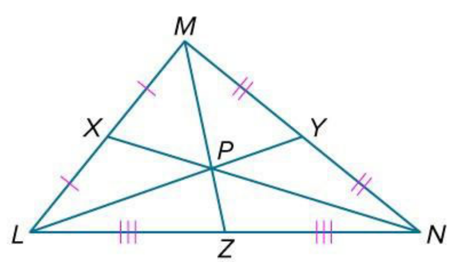
## Example 2
Apply the Centroid Theorem

**In $\triangle LMN$, $PY = 7$. Find $LP$.**

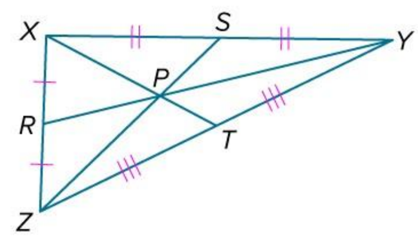


## Example 2

Apply the Centroid Theorem

### Check

In $\triangle XYZ$, $SP = 3.5$. Find $PZ$.

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## Apply Example 3

Find a Centroid on the Coordinate Plane

**CHIMES** **Lashaya needs to hang a wind chime with a single piece of cord. The pipes of the wind chime are attached to a triangular platform. When the platform is placed on a coordinate plane, the vertices of the triangle are located at (1, 1), (11, 5), and (7, 10). What are the coordinates of the point where the cord should be attached to the platform so the wind chime stays balanced?**

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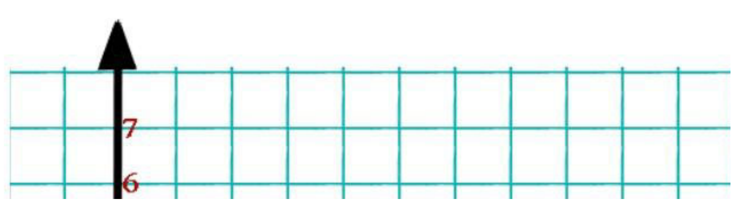
**When the platform is placed on a coordinate**



plane, the vertices of the triangle are located at (1, 1), (11, 5), and (7, 10). What are the coordinates of the point where the cord should be attached to the platform so the wind chime stays balanced?