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# concurrent lines

Two or more lines that intersect in one point are **concurrent lines**.

This intersection point is known as  
the *point of concurrency*.



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# Definition

Heads  
UP!



**Definition**

Two or more lines that intersect  
in one point are  
**concurrent lines**



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# Point of concurrency

This intersection point is known as  
the **point of concurrency**

Definition 2





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# Point of concurrency

Can you name the point of Concurrency?

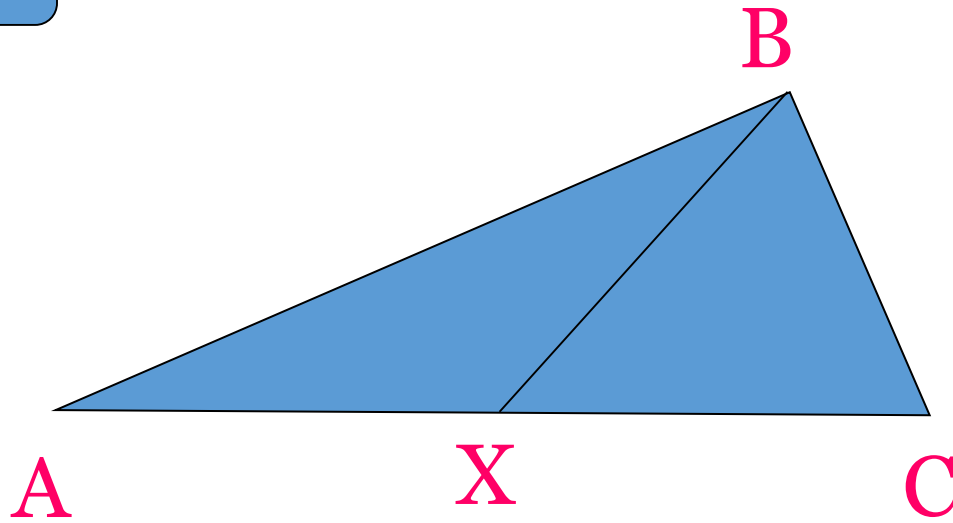


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# Median



IMPORTANT!  
IMPORTANT!  
IMPORTANT!

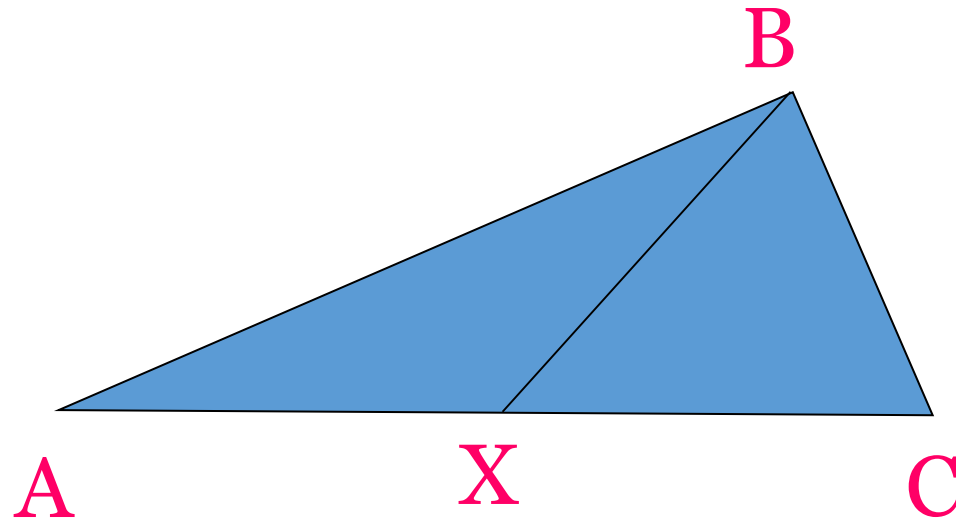


A ***median*** of a triangle is a segment that joins a vertex of a triangle to the midpoint of the opposite side.



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# Median

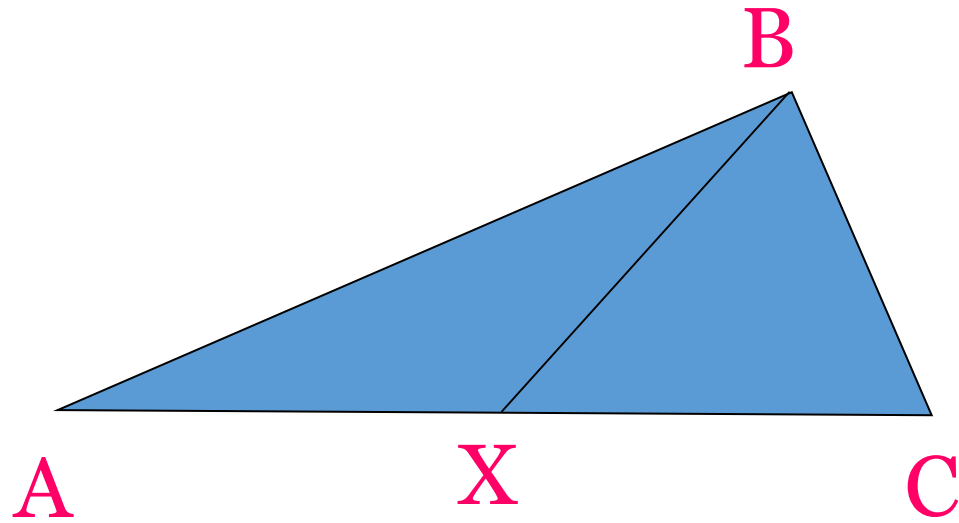


Line **BX** is the **Median** of  
Line **AC**



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How Many Medians can a Triangle have?



Let's name them!



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Point of concurrency of a triangles Medians?

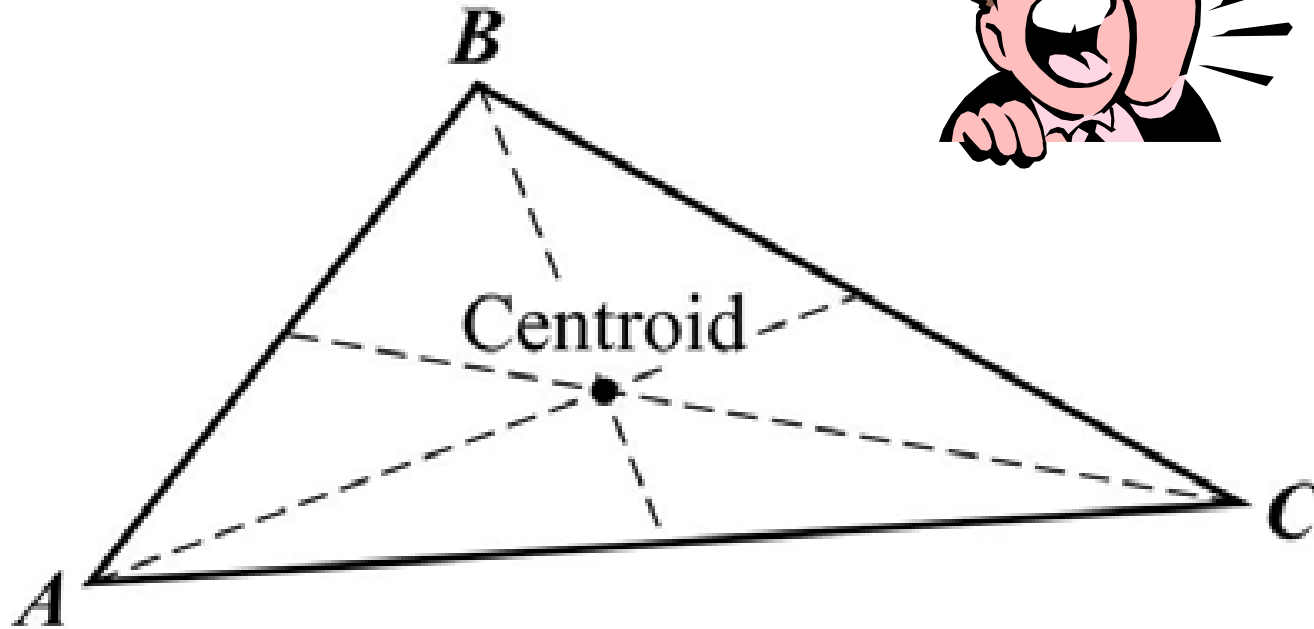
Can you name the point of Concurrency?





# CENTROID

IMPORTANT!  
and  
SERIOUS!



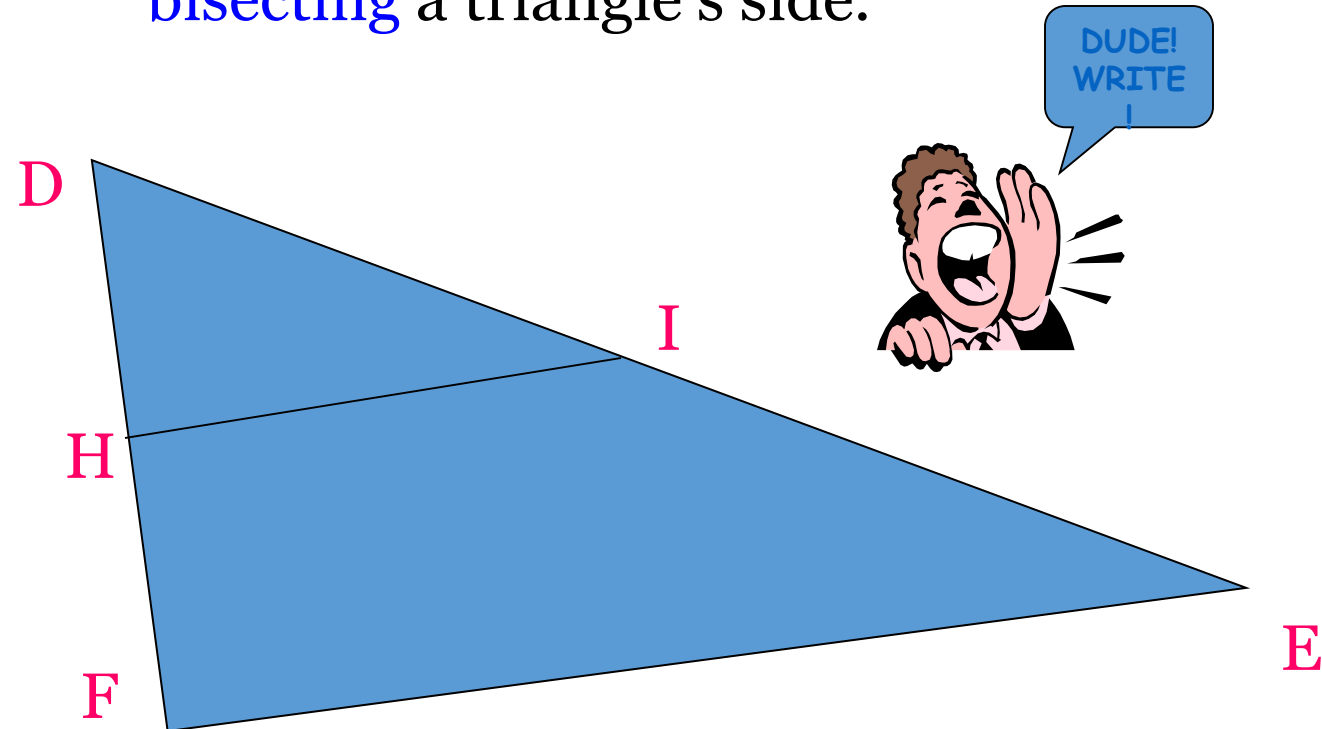
**Centroid** is the point of concurrency of the medians of a triangle.



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# Perpendicular Bisector

A **perpendicular Bisector** is a segment perpendicular to and **bisecting** a triangle's side.

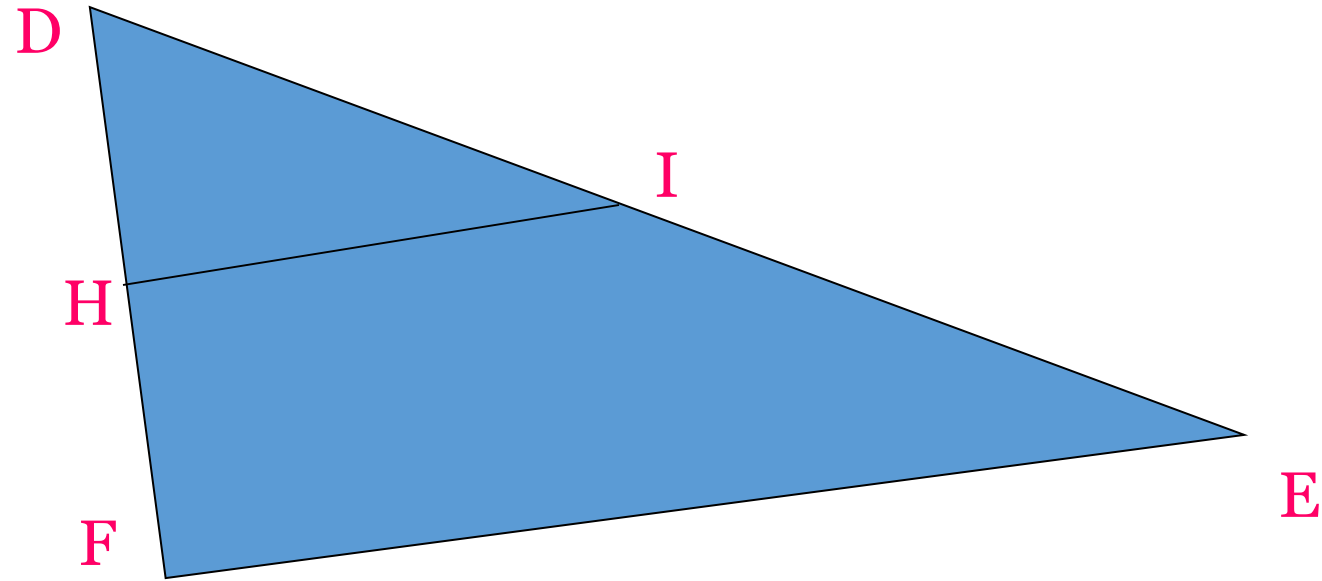


Line **HI** is the **perpendicular bisector**  
of Line **DF**



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# How Many Perpendicular Bisectors can a Triangle have?



Let's name them!



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Point of concurrency of a triangles Perpendicular  
Bisectors?

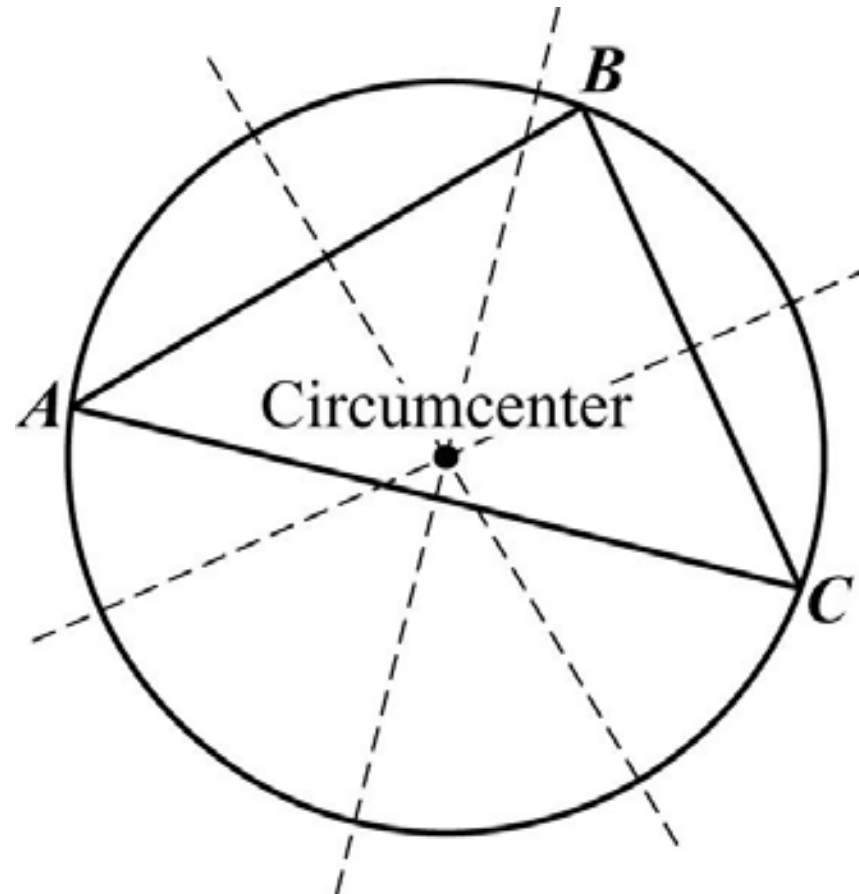
Can you name the point of Concurrency?



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# Circumcenter

- **Circumcenter** is the point of concurrency of the perpendicular bisectors of the sides of a triangle.

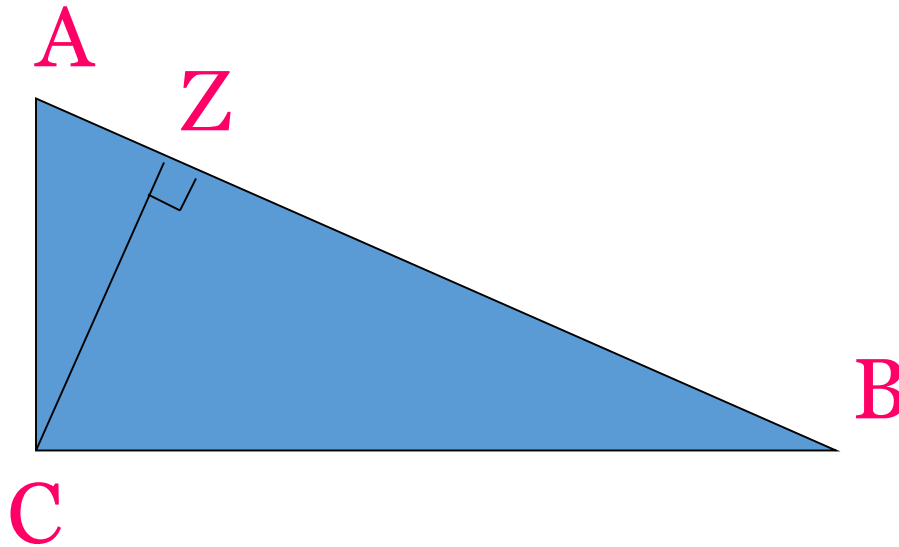




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# Altitude

An **altitude** of a triangle is a **perpendicular segment** from a vertex of the triangle to the line containing the opposite side.



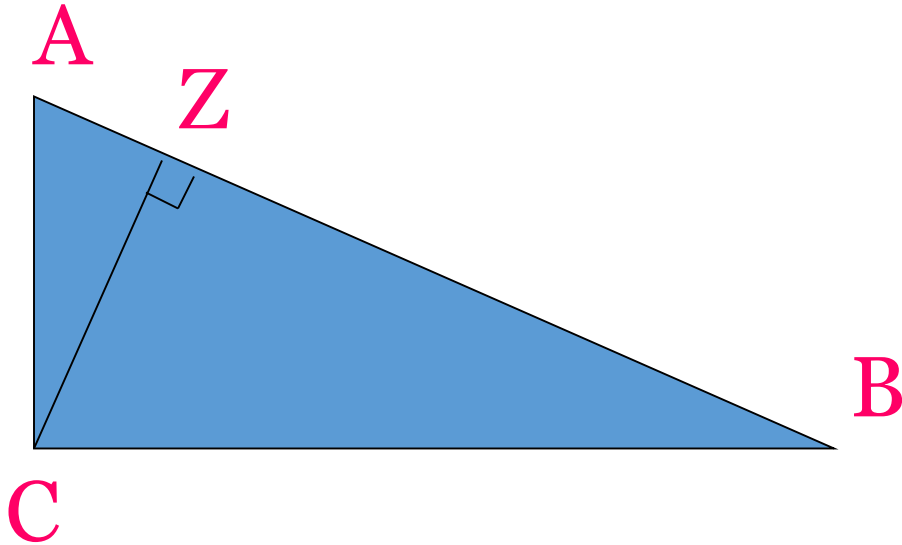
Line **CZ** is the **altitude** from side **AB**  
to angle **C**



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# Altitude

How Many Altitudes can a Triangle have?



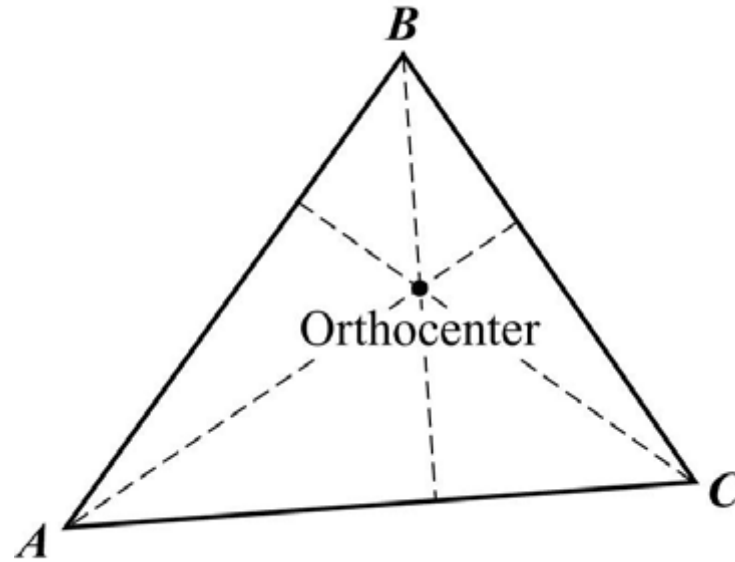
= Please  
Hand-  
raise

Let's name them!



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# Point of concurrency of a triangles Altitudes?



Can you name the point of Concurrency?



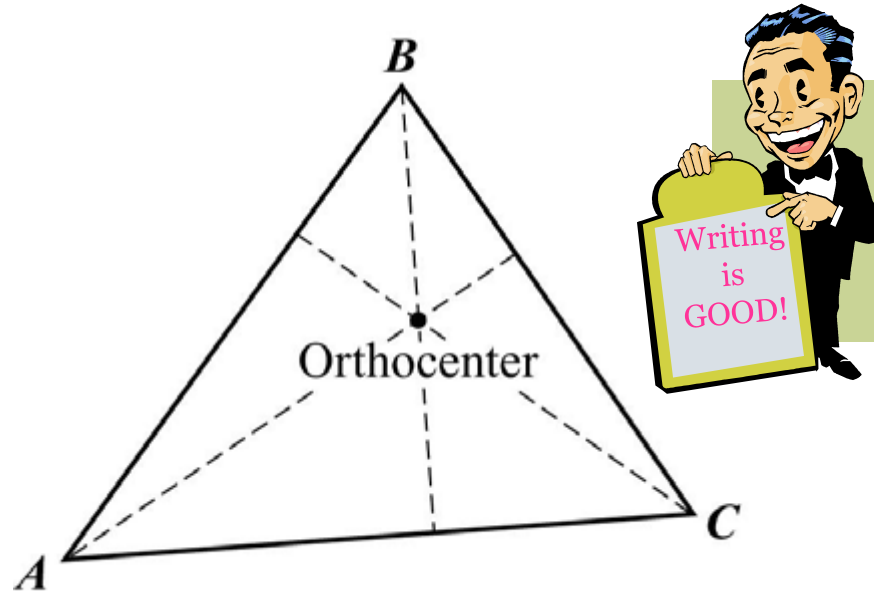


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# Point of concurrency of a triangles Altitudes?

## Orthocenter

is the point of concurrency of the altitudes of a triangle.

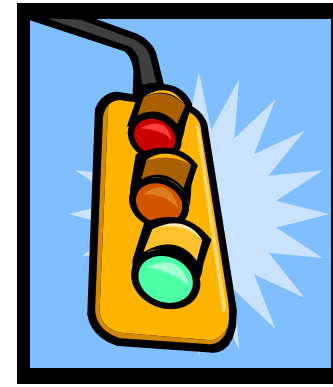


This diagram shows the orthocenter  
of triangle  $ABC$



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# ANGLE BISECTOR



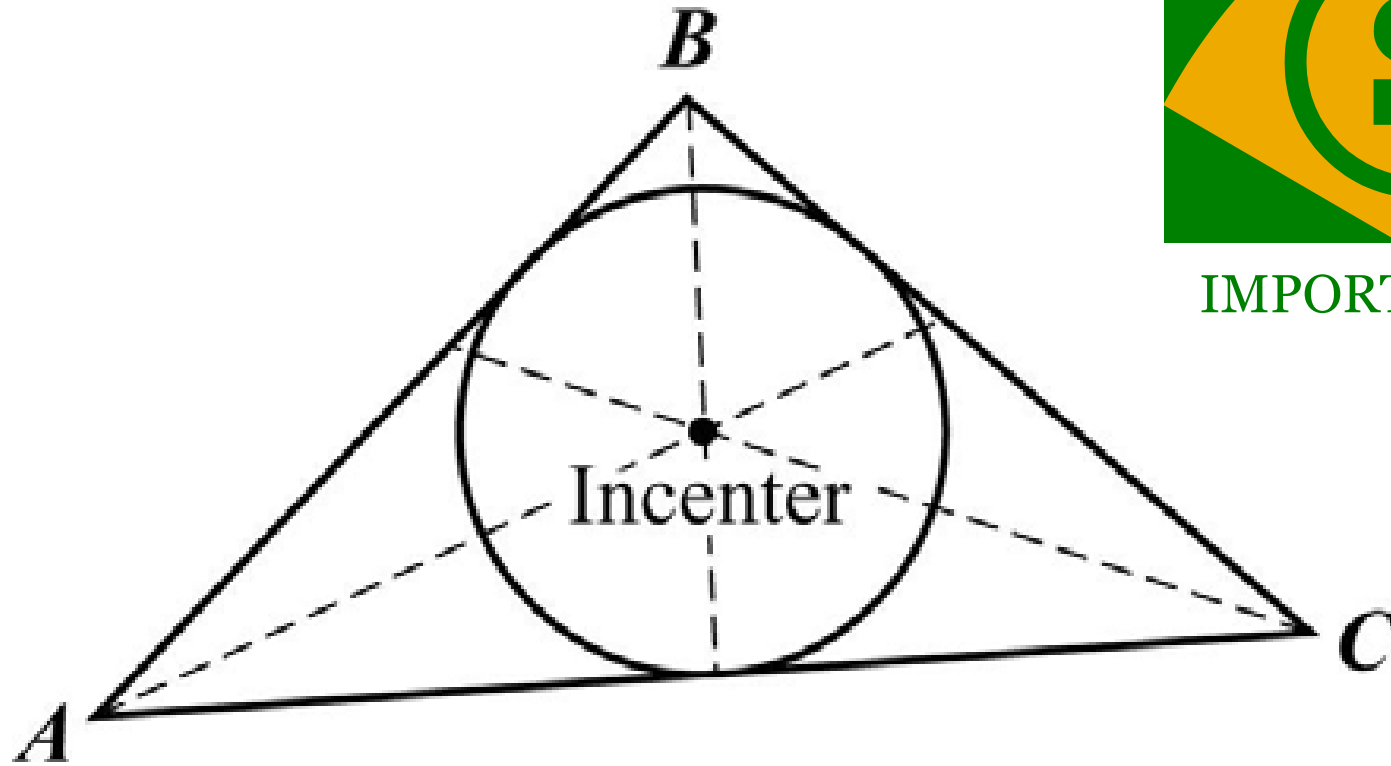
A line segment that passes through the **midpoint** of an angle.

(It splits the angle into **equal halves**)



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is the point of concurrency of the **angle bisectors** of the angles of a triangle.



**IMPORTANT!**



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**MORE LATER!**

