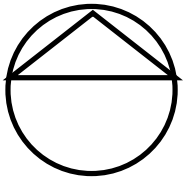
Homework check:

1. incenter
2. centroid
3. orthocenter
4. circumcenter
5. sides
6. vertices
7. half
8. incenter
9. circumcenter



10.

| | Acute | Obtuse | Right |
|---|---|---|---|
| circumcenter | Inside | Outside | On |
| Incenter | Inside | Inside | Inside |
| Centroid | Inside | Inside | Inside |
| Orthocenter | Inside | Outside | On |

11. DB = 8 EA = 15

CG = 12 BA = 16

GE = 5 GD = 6

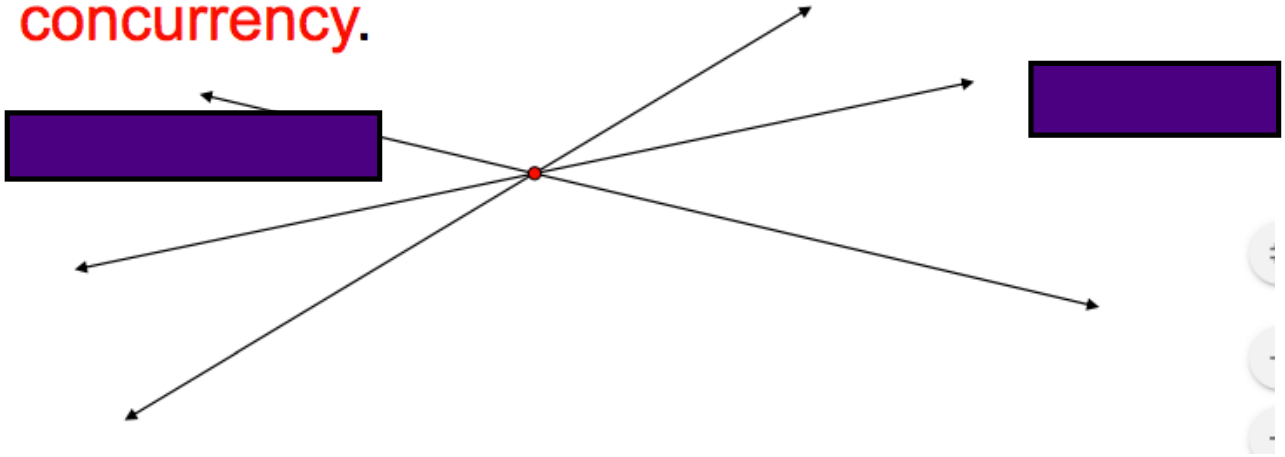
BC = 20 AF = 8

12. x = 5 and y = 7

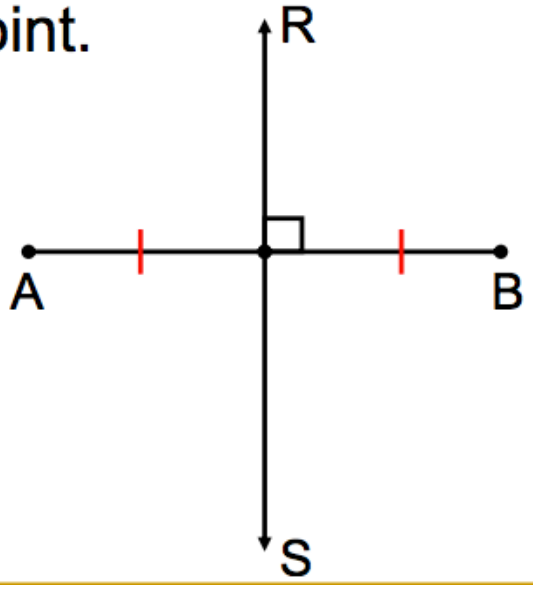
13. centroid incenter circumcenter

orthocenter incenter circumcenter

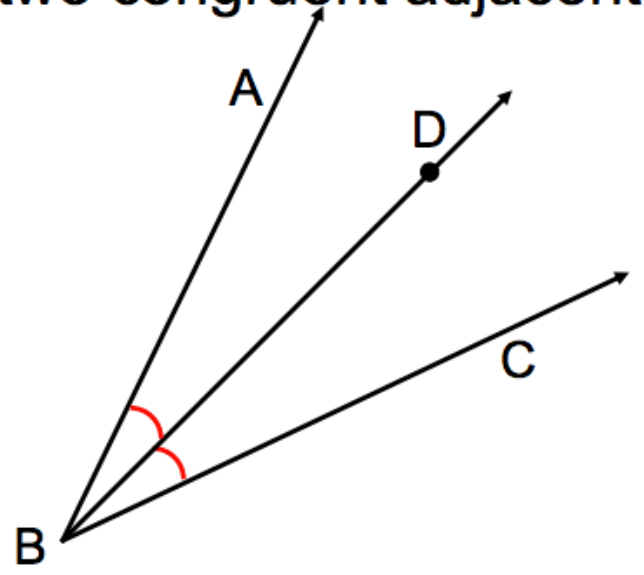
- Three or more lines intersecting at the same point are concurrent.
- The point where they intersect is the point of concurrency.



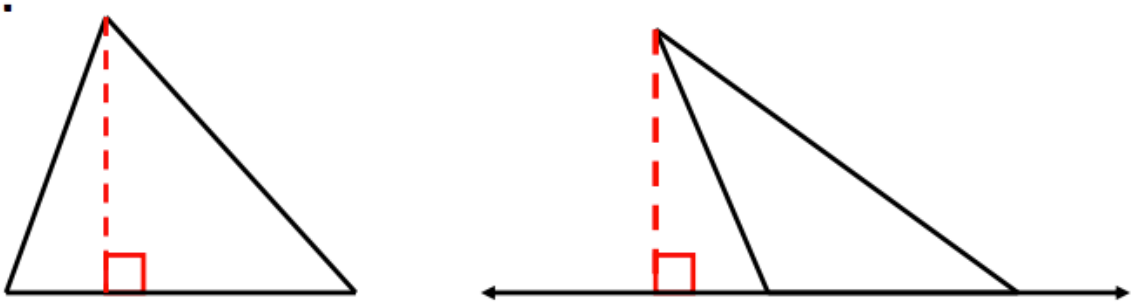
- The perpendicular bisector of a line segment is the line that is perpendicular to the segment at its midpoint.



- The angle bisector is a ray that divides an angle into two congruent adjacent angles.

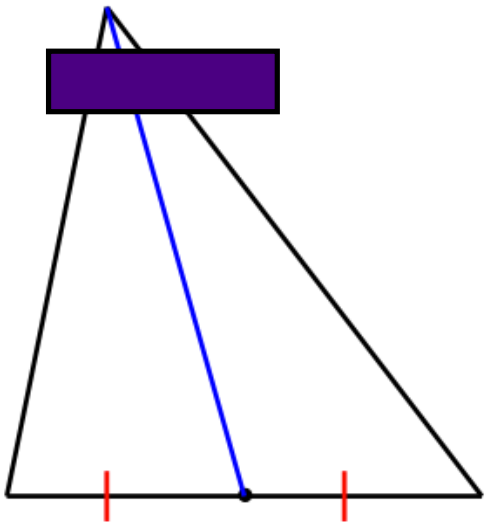


- An altitude of a triangle is a segment drawn from a vertex perpendicular to the opposite side (or to the line containing the opposite side).



A triangle has three altitudes.

A median of a triangle is the segment drawn from a vertex to the midpoint of the opposite side.



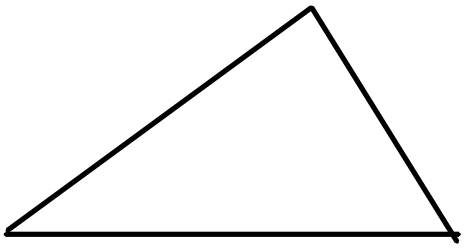
Four Points of Concurrency:

- Circumcenter
- Incenter
- Centroid
- Orthocenter

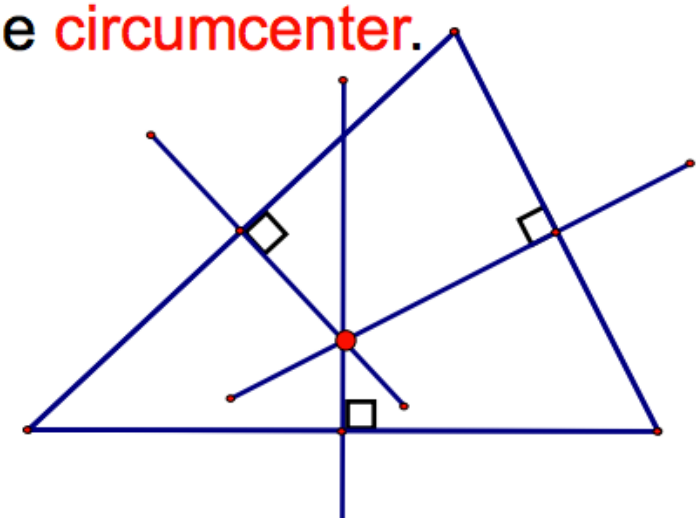
## Circumcenter

Created when using the perpendicular bisectors of each side of a triangle.

In the example box, draw one of the perpendicular bisectors of the triangle.

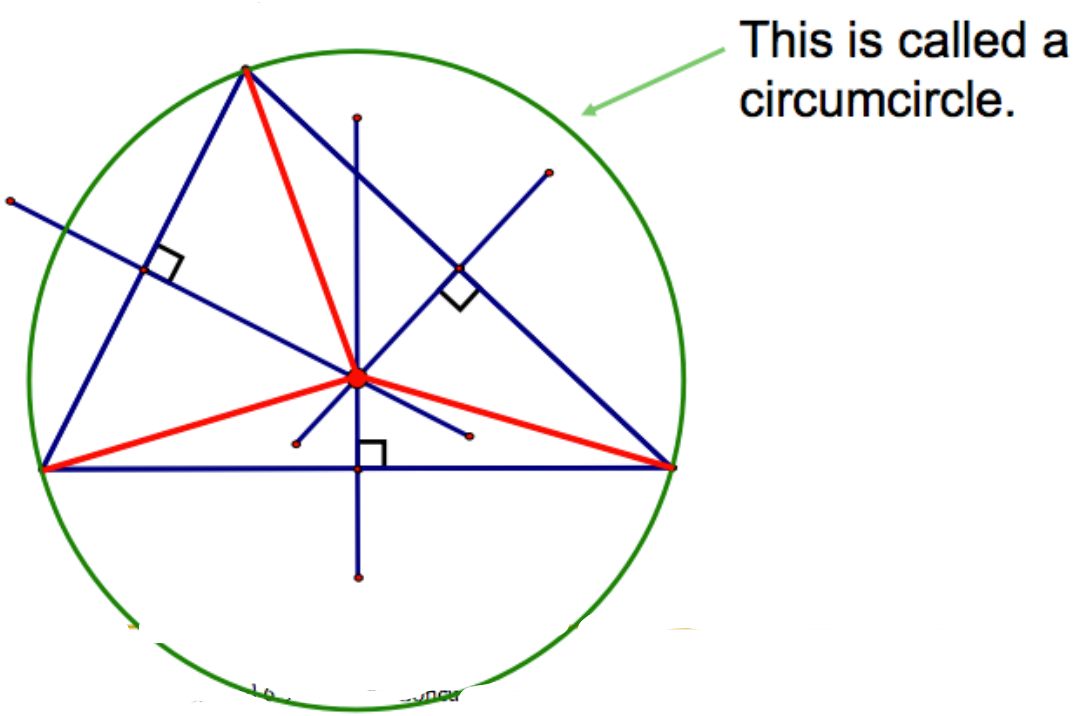


When all three perpendicular bisectors are drawn, the point of concurrency created is called the circumcenter.



## Circumcenter Property

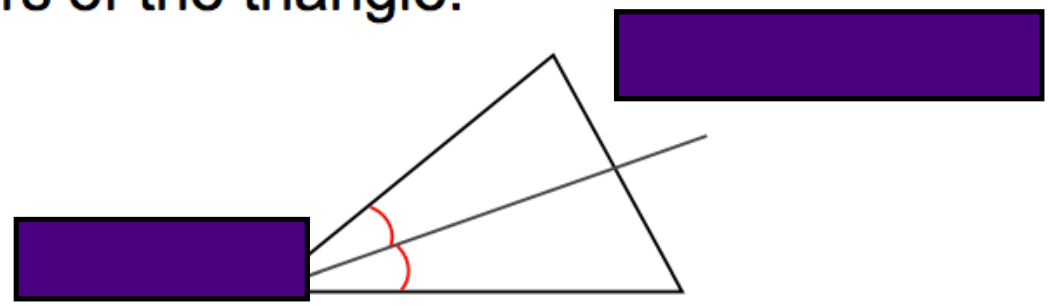
The circumcenter is equidistant from each vertex of the triangle.



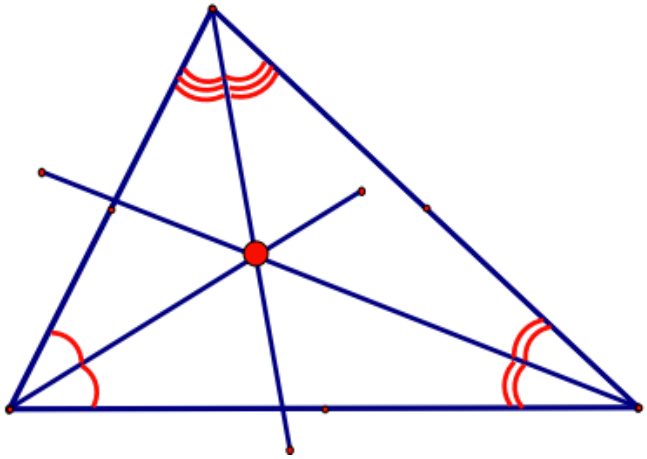
# Incenter:

Created when using the angle bisectors of each vertex of a triangle.

In the example box, draw one of the angle bisectors of the triangle.



When all three angle bisectors are drawn, the point of concurrency created is called the incenter.



Incenter Property:

The incenter is equidistant from the sides of a triangle.

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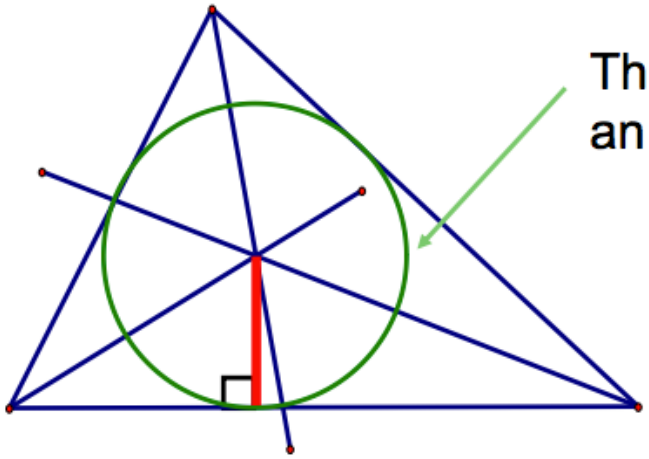
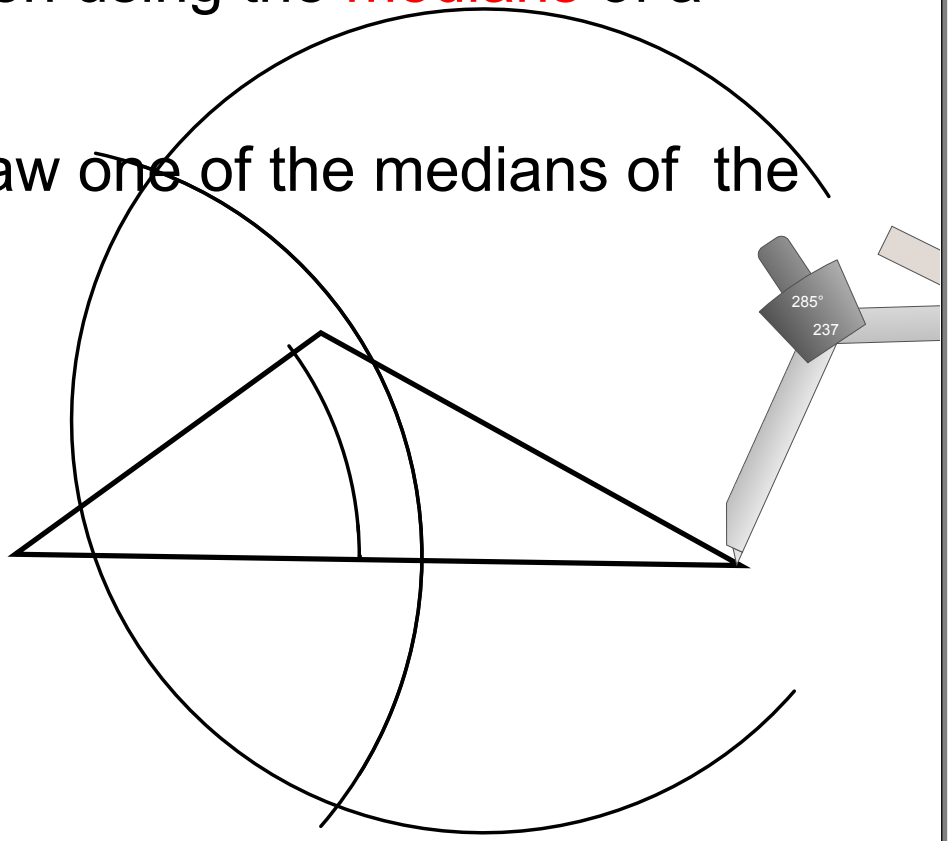


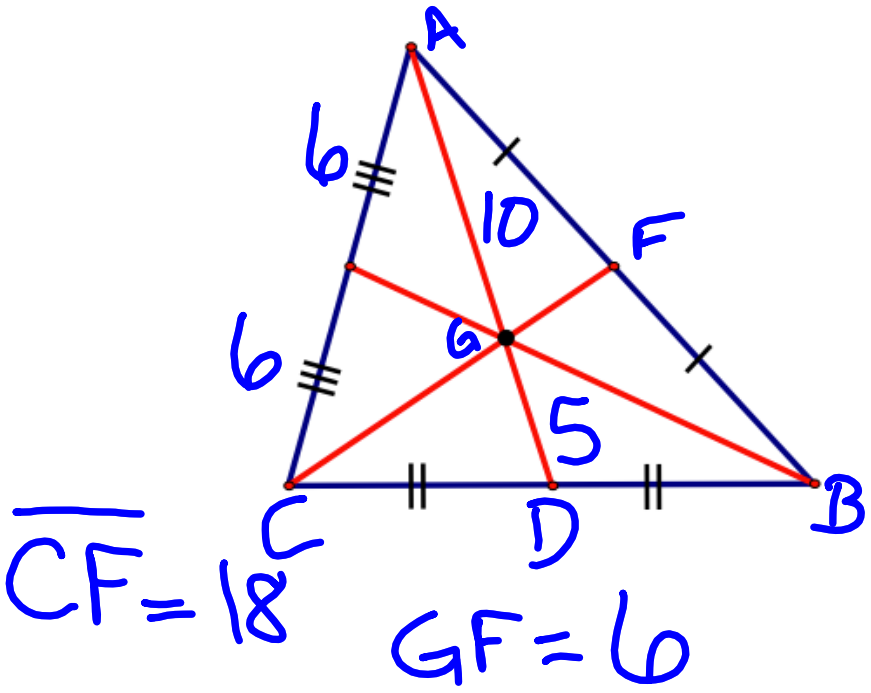
Centroid:

Created when using the medians of a triangle.

In a box, draw one of the medians of the triangle.



When all three medians are drawn, the point of concurrency created is called the centroid.

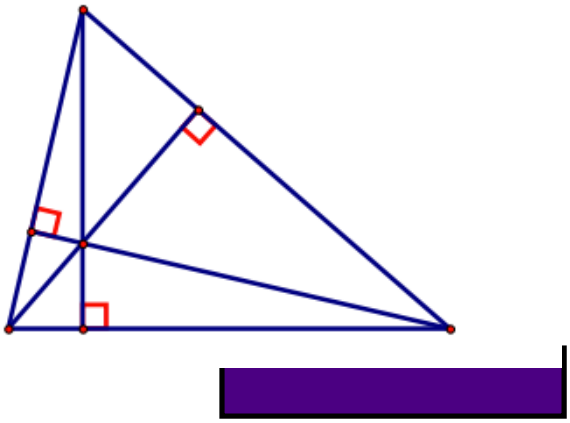



Centroid Property:

The centroid of a triangle is two thirds of the distance from each vertex to the the midpoint of the opposite side.

Orthocenter:

When all three altitudes are drawn, the point of concurrency created is called the orthocenter



So much vocabulary, so little time.

How do I remember this?

**A**ll **O**f

**M**y **C**hildren

**A**re **B**ringing **I**n

**P**eanut **B**utter **C**ookies

Altitude - Orthocenter

Median - Centroid

Angle Bisector - Incenter

Perpendicular Bisector - Circumcenter