

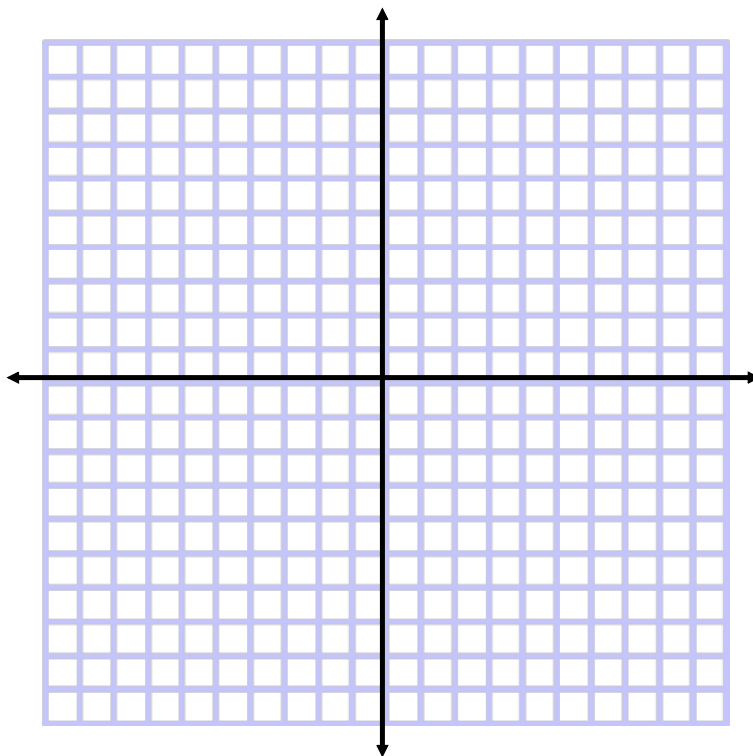
DO NOW:

Find the endpoints of a triangle with the following midpoints.

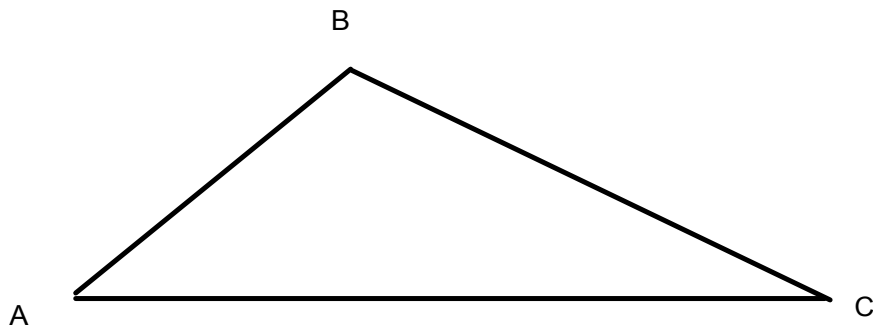
$$A (1, -4)$$

$$B (2, 4)$$

$$C (6, -2)$$



Review:



- a.) Draw an angle bisector for angle B
- b.) Draw a perpendicular bisector of side AC
- c.) Draw a median from angle A to side BC
- d.) Draw an altitude from angle C to side AB

Unit 8 Day 2:  
Segments of Triangles  
Points of Concurrency  
(6.1-6.4)

Find your 2 o'clock partner and find a seat :)

Today's I Can Statements:

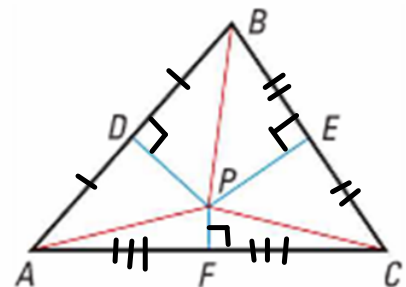
- ST-1: I can identify different segments in a triangle.
- ST-3: I can use coordinates to prove geometric theorems algebraically.

**Point of Concurrency:** The point where \_\_\_\_\_  
or more \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_  
intersect.

### CIRCUMCENTER

The \_\_\_\_\_ of a triangle  
intersect at a point that is \_\_\_\_\_  
of the triangle.

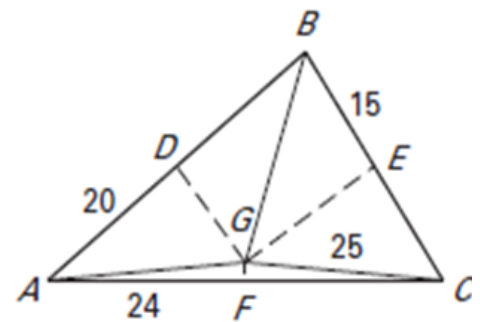
If  $\overline{PD}$ ,  $\overline{PE}$ , and  $\overline{PF}$  are perpendicular bisectors  
then  $PA = PB = PC$ .



## Example

**USING CONCURRENCY** In the diagram, the perpendicular bisectors of  $\triangle ABC$  meet at point  $G$  and are shown in blue. Find the indicated measure.

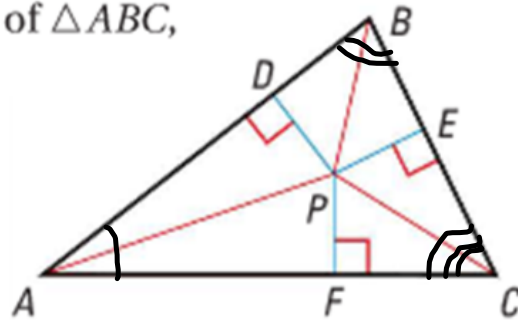
- |                 |                 |
|-----------------|-----------------|
| 13. Find $AG$ . | 14. Find $BD$ . |
| 15. Find $CF$ . | 16. Find $BG$ . |
| 17. Find $CE$ . | 18. Find $AC$ . |



## INCENTER

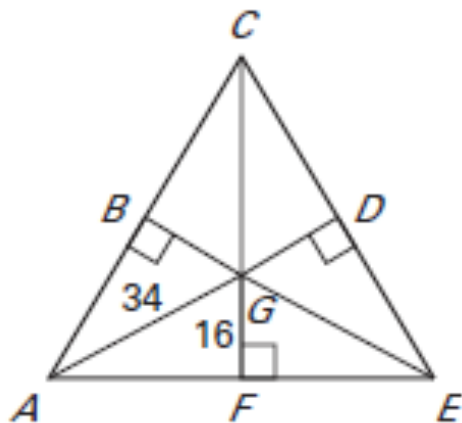
The \_\_\_\_\_ of a triangle intersect at a point that is \_\_\_\_\_ of the triangle.

If  $\overline{AP}$ ,  $\overline{BP}$ , and  $\overline{CP}$  are angle bisectors of  $\triangle ABC$ , then  $PD = PE = PF$ .



## Example

- a.) Point  $G$  is the incenter of  $\triangle ACE$ .  
Find  $BG$ .

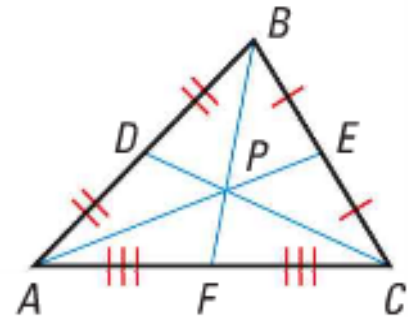


- b.) Find  $AB$ .

## CENTROID

The \_\_\_\_\_ of a triangle intersect at a point that  
\_\_\_\_\_  
\_\_\_\_\_ of the opposite side.

The medians of  $\triangle ABC$  meet at  $P$  and  
 $AP = \frac{2}{3}AE$ ,  $BP = \frac{2}{3}BF$ , and  $CP = \frac{2}{3}CD$ .

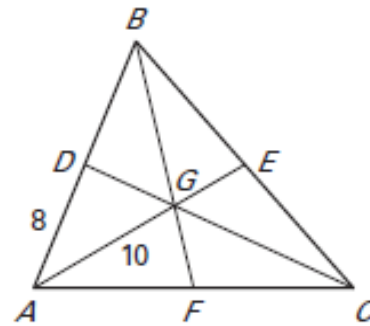




## Example

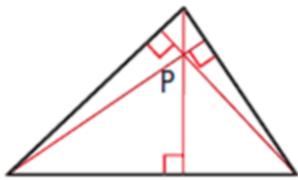
$G$  is the centroid of  $\triangle ABC$ ,  $AD = 8$ ,  $AG = 10$ , and  $CD = 18$ . Find the length of the segment.

1.  $\overline{BD}$
2.  $\overline{AB}$
3.  $\overline{EG}$
4.  $\overline{AE}$
5.  $\overline{CG}$
6.  $\overline{DG}$



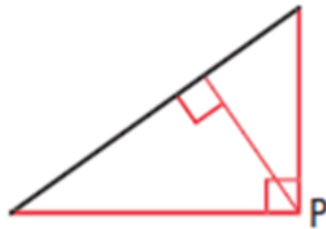
## ORTHOCENTER

The point of concurrency of the \_\_\_\_\_ of the triangle (where the three altitudes intersect)



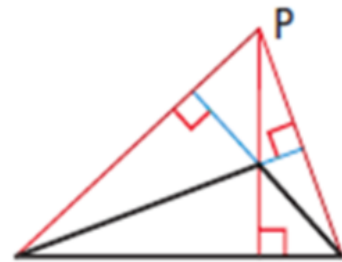
Acute triangle

P is inside triangle



Right triangle

P is on triangle



Obtuse triangle

P is outside triangle

Tonight's Assignment:

Page 315 #3-6,11-14,29-32

Page 324 #3-14, 31-36

Remember:

Segments of Triangles Quiz will be:

Wednesday 1/29 Thursday 1/30

