

#1-2, use  $\triangle ABC$  with vertices of:  $A(2,5)$ ,  $B(12,-1)$ ,  $C(-6,8)$ . A sketch may help (2 pt ea)

1. What are the coordinates of K if CK is a median of  $\triangle ABC$

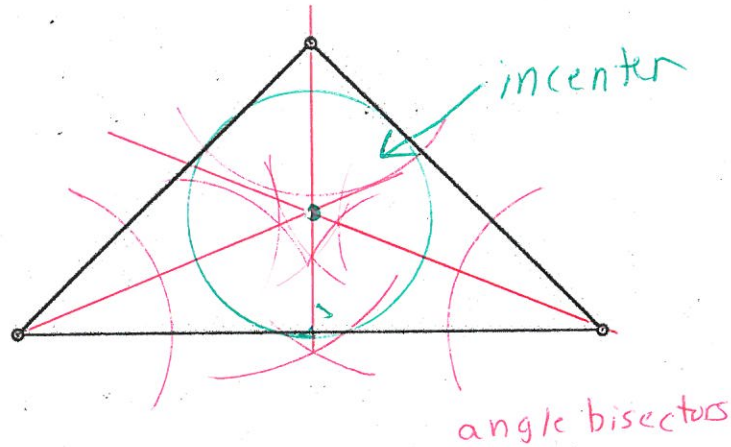
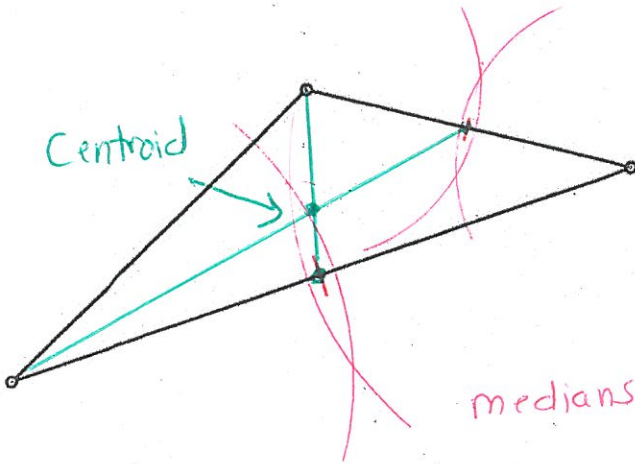
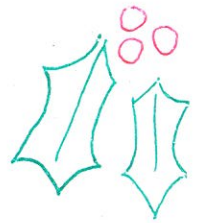
$(7, 2)$

2. What is the slope of the perpendicular bisector of AB?

$\frac{5}{3}$

3. Construct the centroid. (3 pt)

4. Construct an inscribed circle. (3 pt)



#5-6,  $\triangle DSB$  has vertices of:  $D(4,1)$ ,  $S(0,3)$ ,  $B(6,4)$ . Find the equation of the indicated segment. You must show your work. A sketch may help (4 pt ea)

5. Altitude of DS.

6. Median of DB.

$$y - 4 = 2(x - 6)$$

$$y = 2x - 8$$

$$y - 3 = -\frac{1}{10}(x - 0)$$

$$y - 2.5 = -\frac{1}{10}(x - 5)$$

$$y = -0.1x + 3$$

#7-10, Decide whether each statement is always, sometimes or never true. (1 pt ea)

7. A median bisects an angle. *Sometimes*

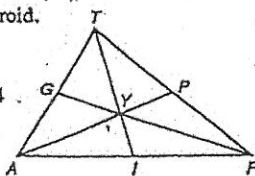
8. A centroid will lie outside the triangle. *never*

9. An altitude will be perpendicular to one side of triangle. *always*

10. The incenter of a right triangle will lie on one of the sides of the triangle. *never*

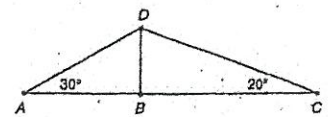
#11-14, Solve for the missing parts. (2 pt ea - #11 = 3 pt)

11. Y is the centroid.  
 $PY = 8$   
 $TY = 18$   
 $FY = AY + 4$   
 $AY = ?$   
 $GY = ?$   
 $IY = ?$



16  
10  
9

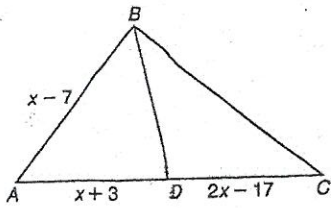
12.  $m\angle A = 30^\circ$ ,  $m\angle C = 20^\circ$   
 $\overline{DB}$  is an altitude of  $\triangle ADC$ .



a. Find the measure of  $\angle ADB$ .  
 $60^\circ$

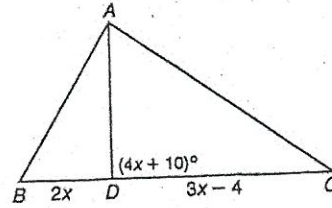
b. Find the measure of  $\angle ADC$ .  
 $130^\circ$

13. Find  $AB$  if  $\overline{BD}$  is a median of  $\triangle ABC$ .



$AB = 13$

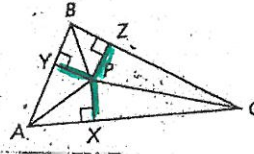
14. Find  $BC$  if  $\overline{AD}$  is an altitude of  $\triangle ABC$ .



$BC = 96$

15.  $P$  is the incenter of  $\triangle ABC$ . Which must be true? (1 pt)

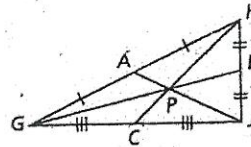
- a.  $PA = PB$
- b.  $YA = YB$
- c.  $PX = PY$
- d.  $AX = BZ$



16. The altitude of a triangle is perpendicular to the line which contains a side of the triangle and connects to the opposite vertex. (1 pt)

#17-20,  $PA = 2.9$  and  $HC = 10.8$ . Find each length. (1 pt ea.)

- 17.  $PC = 3.6$
- 18.  $HP = 7.2$
- 19.  $JA = 8.7$
- 20.  $JP = 5.8$



21.  $\overline{RT}$  is a median in  $\triangle RLB$  with points  $R(3,8)$ ,  $T(12,3)$  and  $B(9,12)$ .

- a. What are the coordinates of  $L$  (carefull!) (2 pt)

$(15, -6)$

- b. Is  $\overline{RT}$  an altitude in  $\triangle RLB$ ? Explain why or why not. (2 pt)

No, slopes are not opposite reciprocals. Lines can not be  $\perp$ .

