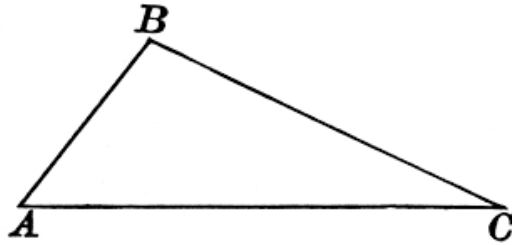
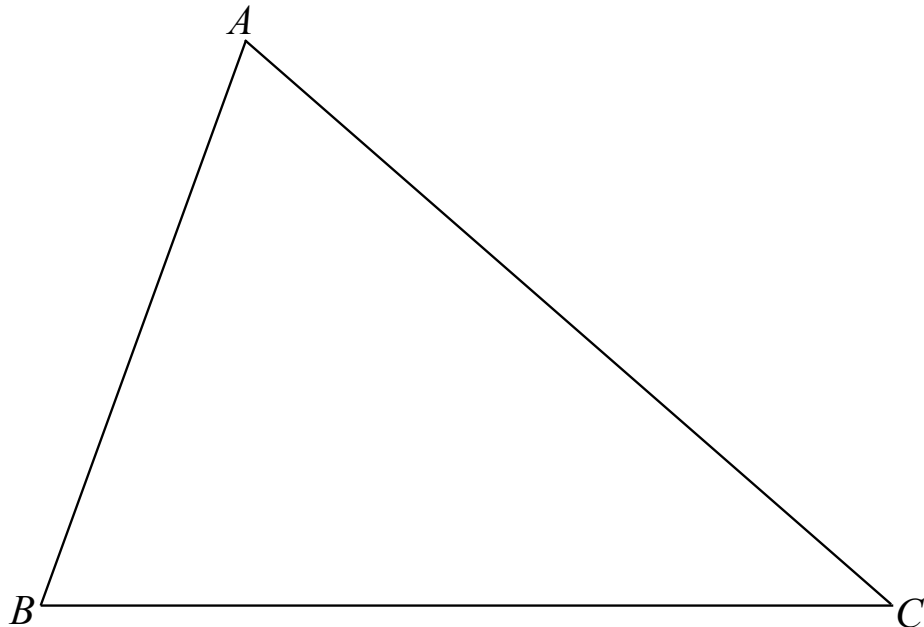


AIM: WHAT IS A CENTROID?

Do Now: Construct the median to \overline{AC} .



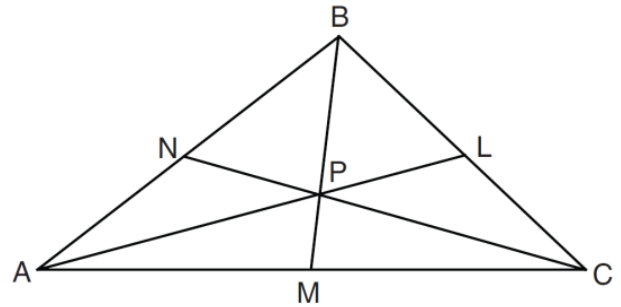
1. Given $\triangle ABC$ below, construct medians \overline{AG} , \overline{BE} and \overline{CF} . Label the point of concurrency G .

**NOTES:**

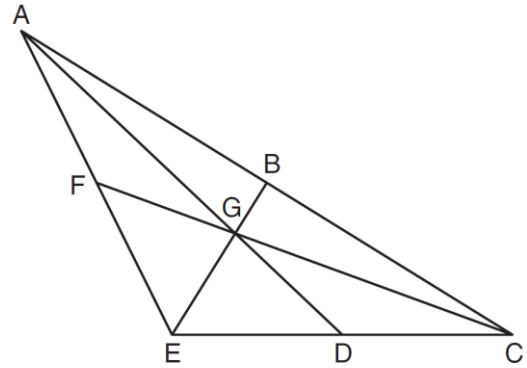
- The point of concurrency for the three medians is called the _____.
 - The centroid will always be _____ of the triangle.
 - There is a relationship between \overline{AG} & \overline{GD} that exists. Using only your compass, determine this relationship. Does this relationship exist with the other two medians?
-
- The centroid divides each median into a ratio of _____.
 - The segment closest to the vertex is _____ the length of the other segment.
 - The centroid is referred to as the _____ of a triangle.

PRACTICE:

2. In the diagram below, point P is the centroid of $\triangle ABC$. If $LP = 10$, What is the value of AP ?

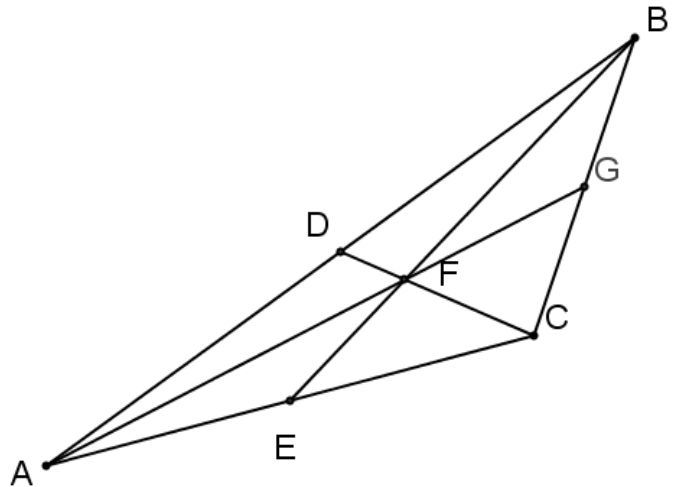


3. In the diagram below of $\triangle ACE$, medians \overline{AD} , \overline{EB} , and \overline{CF} intersect at G . The length of \overline{GC} is 24 cm. What is the length, in centimeters, of \overline{FG} ?



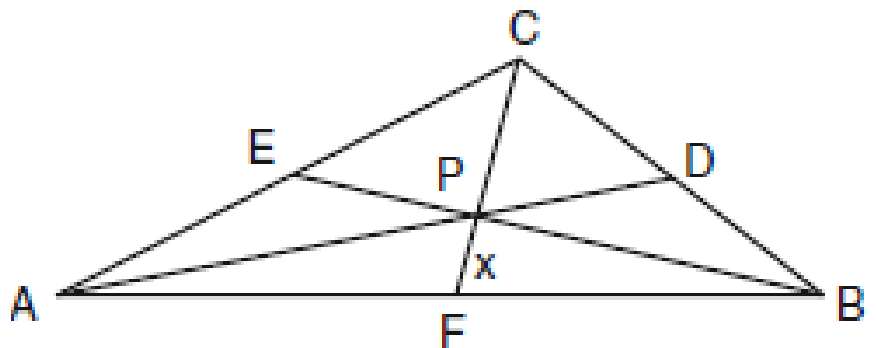
4. In the diagram of $\triangle ABC$ below, point F is the centroid of $\triangle ABC$. If $DF = 4$ and $BF = 22$, determine each of the following measures.

- A. $FC =$ _____
- B. $DC =$ _____
- C. $EF =$ _____
- D. $BE =$ _____

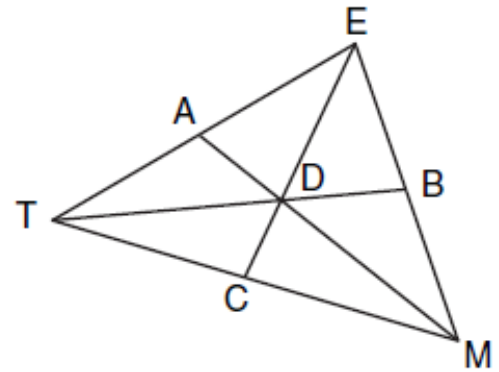


5. In the diagram of $\triangle ABC$ below, Jose found centroid P by constructing the three medians. He measured \overline{CF} and found it to be 6 inches. If $PF = x$, which equation can be used to find x ?

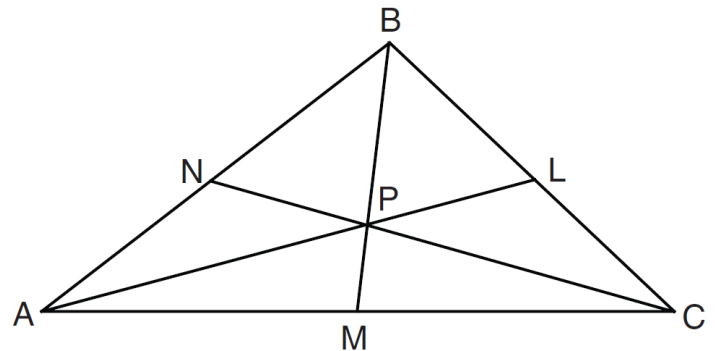
- 1) $x + x = 6$
- 2) $2x + x = 6$
- 3) $3x + 2x = 6$
- 4) $x + \frac{2}{3}x = 6$



6. In the diagram below of $\triangle TEM$, medians \overline{TB} , \overline{EC} , and \overline{MA} intersect at D , and $TB = 9$. Find the length of \overline{TD} .



7. In the diagram below, point P is the centroid of $\triangle ABC$. If $PM = 2x + 5$ and $BP = 7x + 4$, what is the length of \overline{PM} ?



Name: _____

Date: _____

UNIT 1B

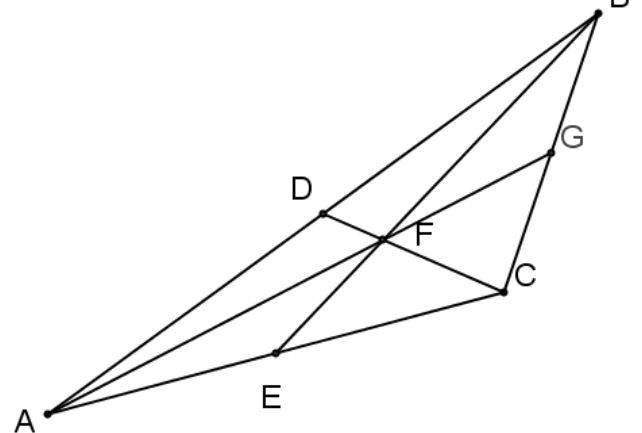
LESSON 10

EXIT TICKET

In the diagram of $\triangle ABC$ below, point F is the centroid of $\triangle ABC$. If $AG = 48$, determine the following measures.

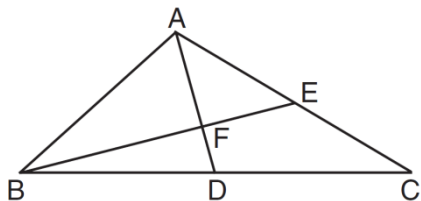
$AF =$ _____

$FG =$ _____



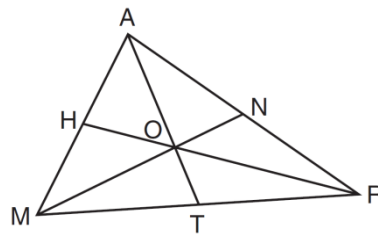
HOMEWORK

1. In the diagram of $\triangle ABC$ below, medians \overline{AD} and \overline{BE} intersect at point F .



If $AF = 6$, what is the length of \overline{FD} ?

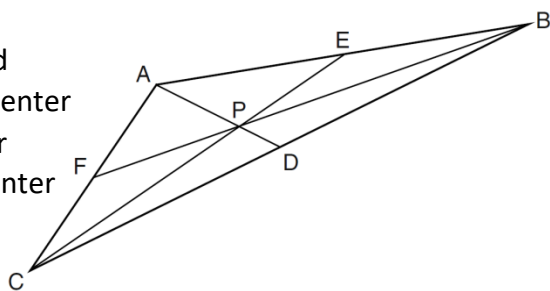
2. In the diagram below of $\triangle MAR$, medians \overline{MN} , \overline{AT} , and \overline{RH} intersect at O .



If $TO = 10$, what is the length of \overline{TA} ?

3. In the diagram below of $\triangle ABC$, $\overline{AE} \cong \overline{BE}$, $\overline{AF} \cong \overline{CF}$, and $\overline{CD} \cong \overline{BD}$. Point P must be the

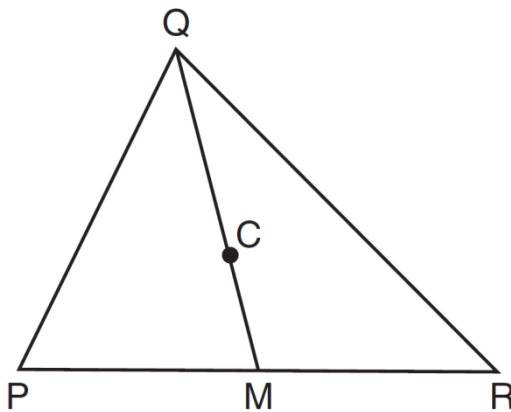
- 1) centroid
- 2) circumcenter
- 3) incenter
- 4) orthocenter



4. The three medians of a triangle intersect at a point. Which measurements could represent the segments of one of the medians?

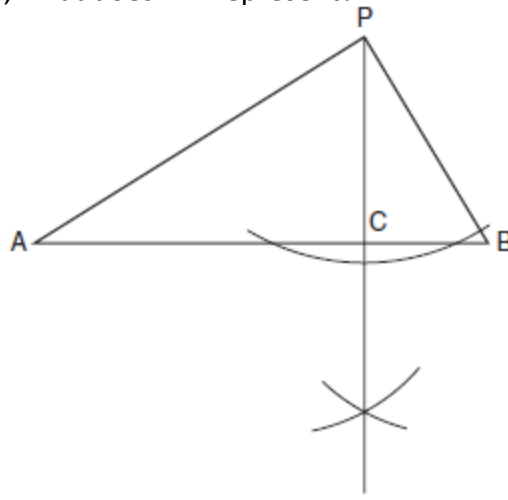
- 1) 2 and 3
- 2) 3 and 4.5
- 3) 3 and 6
- 4) 3 and 9

5. In the diagram below, \overline{QM} is a median of triangle PQR and point C is the centroid of triangle PQR . If $QC = 5x$ and $CM = x + 12$. Determine and state the length of \overline{QM} .

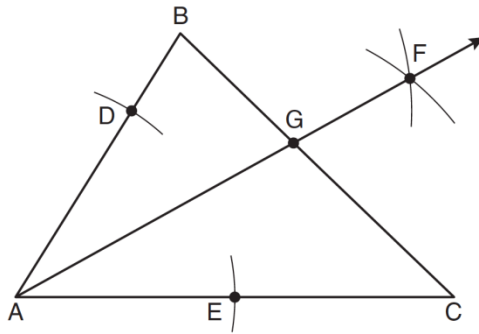


6. In the accompanying diagram of a construction, what does \overline{PC} represent?

- 1) an altitude drawn to \overline{AB}
- 2) a median drawn to \overline{AB}
- 3) the bisector of $\angle APB$
- 4) the perpendicular bisector of \overline{AB}



7. As shown in the diagram below of $\triangle ABC$, a compass is used to find points D and E , equidistant from point A . Next, the compass is used to find point F , equidistant from points D and E . Finally, a straightedge is used to draw \overrightarrow{AF} . Then, point G , the intersection of \overrightarrow{AF} and side \overline{BC} of $\triangle ABC$, is labeled.



Which statement must be true?

- | | |
|---|--|
| 1) \overrightarrow{AF} bisects side \overline{BC} | 3) $\overrightarrow{AF} \perp \overline{BC}$ |
| 2) \overrightarrow{AF} bisects $\angle BAC$ | 4) $\triangle ABG \sim \triangle ACG$ |