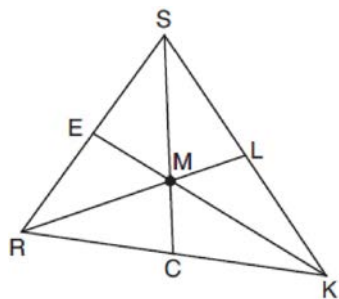


G.SRT.B.4: Centroid, Orthocenter, Incenter and Circumcenter 1

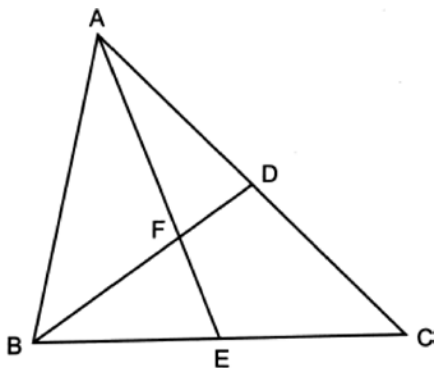
- 1 In triangle SRK below, medians $\overline{SC}$, $\overline{KE}$, and $\overline{RL}$ intersect at M .



Which statement must always be true?

- 1) $3(MC) = SC$ 2) $MC = \frac{1}{3}(SM)$
3) $RM = 2MC$ 4) $SM = KM$

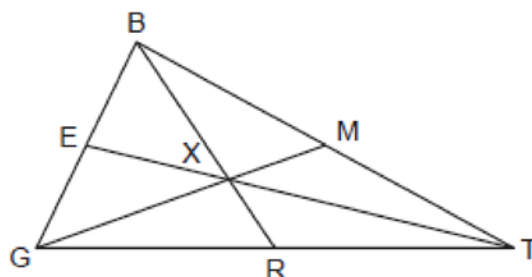
- 2 In the diagram below of $\triangle ABC$, the midpoint of $\overline{AC}$ is D , the midpoint of $\overline{BC}$ is E , and $\overline{AE}$ and $\overline{BD}$ intersect at F .



Which statement is always true?

- 1) $AE = 3(FE)$ 2) $BF = 3(FD)$ 3) $AF = BF$
4) $AD = BE$

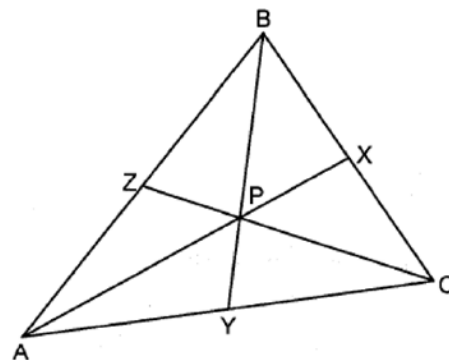
- 3 In $\triangle GBT$ shown below, $\overline{GXM}$, $\overline{BXR}$, and $\overline{TXE}$ are drawn such that point X is the centroid.



Which statement is always true?

- 1) $\frac{MX}{GX} = \frac{1}{3}$ 2) $\frac{TX}{EX} = \frac{2}{1}$ 3) $\overline{BX} \cong \overline{RX}$
4) $\overline{TM} \cong \overline{TR}$

- 4 In the diagram below, $\triangle ABC$ has medians $\overline{AX}$, $\overline{BY}$, and $\overline{CZ}$ that intersect at point P .

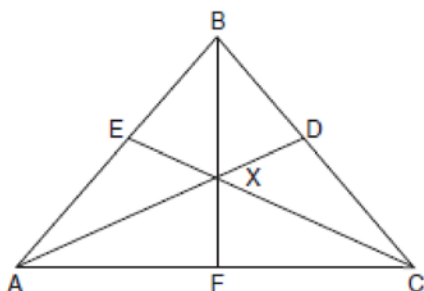


If $AB = 26$, $AC = 28$, and $PC = 16$, what is the perimeter of $\triangle CZA$?

- 1) 57 2) 65 3) 70 4) 73

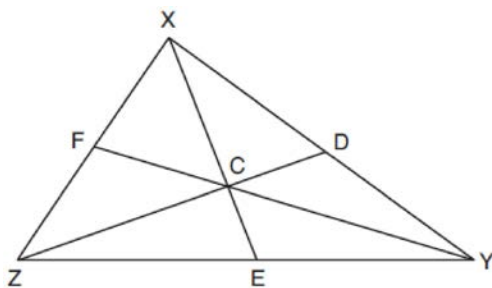
- 5 If the altitudes of a triangle meet at one of the triangle's vertices, then the triangle is
 1) a right triangle 2) an acute triangle 3) an obtuse triangle 4) an equilateral triangle

- 6 In the diagram below of isosceles triangle ABC , $\overline{AB} \cong \overline{CB}$ and angle bisectors $\overline{AD}$, $\overline{BF}$, and $\overline{CE}$ are drawn and intersect at X .



If $m\angle BAC = 50^\circ$, find $m\angle AXC$.

- 7 In $\triangle XYZ$, shown below, medians $\overline{XE}$, $\overline{YF}$, and $\overline{ZD}$ intersect at C .



If $CE = 5$, $YF = 21$, and $XZ = 15$, determine and state the perimeter of triangle CFX .

G.SRT.B.4: Centroid, Orthocenter, Incenter and Circumcenter 1 **Answer Section**

1 ANS: 1

M is a centroid, and cuts each median 2:1.

REF: 061818geo

2 ANS: 1

F is a centroid, and cuts each median 2:1.

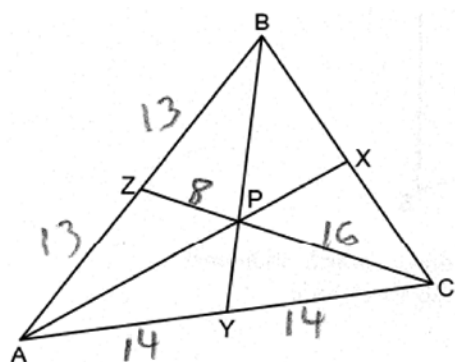
REF: 082605geo

3 ANS: 2

A centroid cuts each median 2:1.

REF: 012624geo

4 ANS: 2



$$\frac{x}{16} = \frac{1}{2} \quad 8 + 16 + 13 + 14 + 14 = 65$$

$$x = 8$$

REF: 082408geo

5 ANS: 1

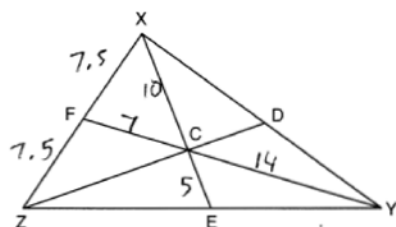
REF: 081904geo

6 ANS:

$$180 - 2(25) = 130$$

REF: 011730geo

7 ANS:



$$7.5 + 7 + 10 = 24.5$$

REF: 012030geo