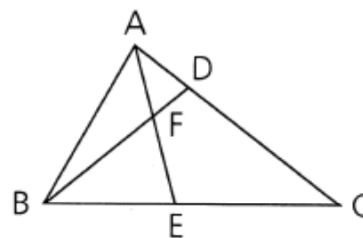


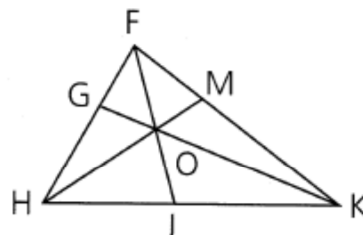
Part Three: Problem Set

- 1 Given: \overline{AE} is a median of $\triangle ABC$.
 $AD:DC = 3:7$

Find: $BF:FD$

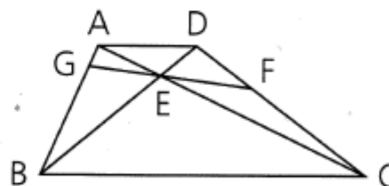


- 2 In the figure shown, $\frac{HG}{HF} = \frac{4}{9}$ and $\frac{FM}{MK} = \frac{2}{3}$.
 Find $\frac{HJ}{JK}$ and $\frac{FO}{FJ}$.



- 3 In a triangle ABC, \overline{BD} is a median, F is a point on \overline{AB} , and \overline{CF} intersects \overline{BD} at E. If $BE = 4(ED)$ and $BF = 20$, what is AF?
 4 In a triangle ABC, $\angle A = 45^\circ$, $\angle C = 60^\circ$, and altitude \overline{BH} intersects median \overline{AM} at point P. If $AP = 4$, what is AM?

- 5 Given: Trapezoid ABCD ($\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$),
 $AD = \frac{1}{4}(BC)$, $\frac{DF}{FC} = \frac{2}{3}$
 Find: $\frac{GE}{GF}$



6. Triangle ABC has cevians \overline{AB} , \overline{BE} , and \overline{CF} drawn such that $\frac{BF}{AF} = \frac{1}{4}$ and $\frac{CD}{BD} = \frac{3}{8}$. The intersection of the three cevians is G. Given that $DG = 6$, find the length of AD.
 7. In triangle XYZ, points R and S lie on sides \overline{XZ} and \overline{YZ} respectively with \overline{RY} and \overline{SX} intersecting at Q such that $SQ = 4$ and $SX = 15$. If $\frac{SZ}{SY} = \frac{3}{8}$, what is the ratio of RQ to QY?
 8. The area of triangle ABC is 125. Cevians \overline{BY} and \overline{AX} intersect at N such that $\frac{BX}{CX} = 4$ and $\frac{AY}{CY} = 19$. What is the area of triangle CXN?