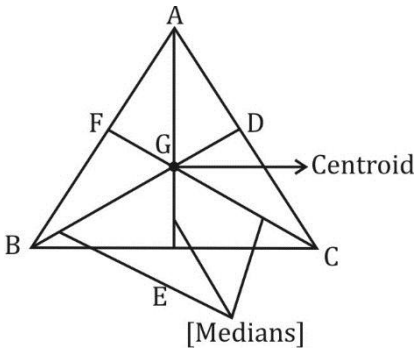
Properties of Triangle

- **Centroid [Medians]**



- Centroid divides median of a triangle in ratio 2 : 1

$$\rightarrow \frac{AG}{GE} = \frac{2}{1}$$
$$\rightarrow \frac{AG}{AE} = \frac{2}{3}$$
$$\rightarrow \frac{GE}{AE} = \frac{1}{3}$$

- area Δ ABE = $\frac{1}{2}$ area Δ ABC
- area Δ AGB = $\frac{1}{3}$ area Δ ABC
- area Δ AGF = $\frac{1}{6}$ area Δ ABC
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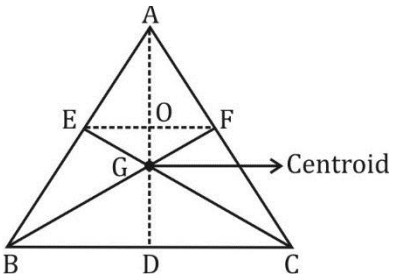
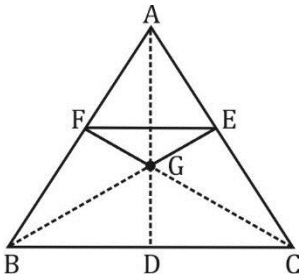


- AO = OD
- OG = $\frac{1}{3}$ AO
- $AB^2 + BC^2 = 2BD^2 + \frac{1}{2} AC^2$
- $AB^2 + AC^2 = 2AE^2 + \frac{1}{2} BC^2$
- $CA^2 + CB^2 = \frac{1}{2} AB^2 + 2 FC^2$

- 

- Area Δ FGE = $\frac{1}{12}$ area Δ ABC
- 3 × (sum of side square) = 4x (sum of median square)

  $3 \times (AB^2 + BC^2 + AC^2) = 4x\ (AE^2 + BD^2 + CF^2)$
- area Δ ABC = $\frac{4}{3}$ area Δ (Formed by taking AD, BF, CE, as sides of a triangle)