Class & Section	Subject	Preparation et moyens d'illustration / Preparation and means of illustration

$\vec{GA} + \vec{GB} + \vec{GC} = \vec{0}$

in triangle GBC we have:

$\vec{GB} + \vec{GC} = 2\vec{GM}$ (M mid of [BC])

Then $\vec{GA} + \vec{GB} + \vec{GC} = \vec{0}$

$-2\vec{GM} + 2\vec{GM} = \vec{0}$ (Proved)

the parallel through G to (AB) cuts [BM] at E then $GE \parallel AB$. Compare $\vec{EG}$ and $\vec{AB}$

take 2 $\triangle$s MGE and MAB, are similar $\triangle$s

Co-or angle M ; and $GE \parallel AB$.

(MGE, MAB) Ratio of Similarity:

$\frac{MG}{MA} = \frac{ME}{MB} = \frac{GE}{AB}$

but $\frac{MG}{MA} = \frac{1}{3}$ (property of Centroid that the median in a Δ ratio)

Then $\frac{GE}{AB} = \frac{1}{3}$ Thus $\vec{AB} = 3\vec{GE}$