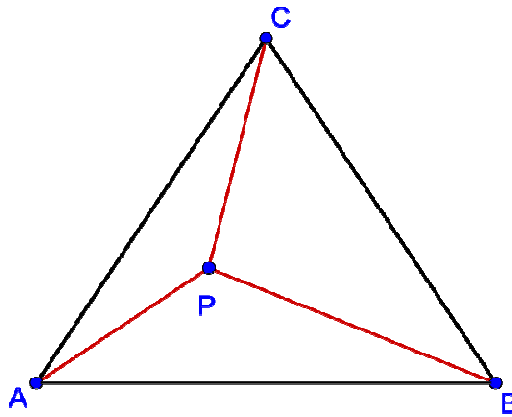


## Vector



- (a) Let  $P$  be a point inside  $\triangle ABC$  such that  $3\vec{PA} + 2\vec{PB} + \vec{PC} = \vec{0}$ , find  $[\triangle PBC]:[\triangle PCA]:[\triangle PAB]$ , where  $[\triangle PAB]$  represents the *area* of the  $\triangle PAB$ .



- (b) Let  $P$  be a point inside  $\triangle ABC$  such that  $a\vec{PA} + b\vec{PB} + c\vec{PC} = \vec{0}$ , find  $[\triangle PBC]:[\triangle PCA]:[\triangle PAB]$ .
- (c) If  $P$  be a point inside  $\triangle ABC$  such that  $\vec{PA} + 5\vec{PB} + 3\vec{PC} = \vec{0}$ , find  $[\triangle ABC]:[ABPCA]$ , where  $ABPCA$  is the concave quadrilateral.