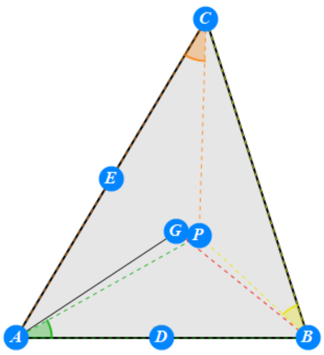

Example 28 : As shown in Figure 9, in $\triangle ABC$, G is the center of gravity, and point P satisfies $\angle PAB=\angle PBC=\angle PCA$. If A, B, P, and G are four points in a circle, prove that: C, E, G, and P are in a circle, and A, D, and The four points G and E share a circle.

Proof: $\dfrac{\dfrac{\dfrac{A+C}{2}-P}{\dfrac{A+C}{2}-\dfrac{A+B+C}{3}}}{\dfrac{C-P}{C-\dfrac{A+B+C}{3}}}=\dfrac{\dfrac{\dfrac{A+B+C}{3}-P}{\dfrac{A+B+C}{3}-B}}{\dfrac{C-P}{C-A}}+1$,

description $\angle PEG=\angle PCG \Leftrightarrow \angle PGB=\angle PAB$,

$$\frac{\dfrac{\dfrac{A+B+C}{3}-\dfrac{A+B}{2}}{\dfrac{A+B+C}{3}-A}}{\dfrac{\dfrac{A+C}{2}-\dfrac{A+B}{2}}{\dfrac{A+C}{2}-A}}+\frac{\dfrac{1}{2}}{\dfrac{\dfrac{A-P}{A-B}}{\dfrac{B-P}{B-C}}-\dfrac{\dfrac{\dfrac{A+B+C}{3}-P}{\dfrac{A+B+C}{3}-B}}{\dfrac{B-P}{B-C}}}=1,$$

description $\angle AED=\angle AGD \Leftrightarrow \angle PGB=\angle PBC$.