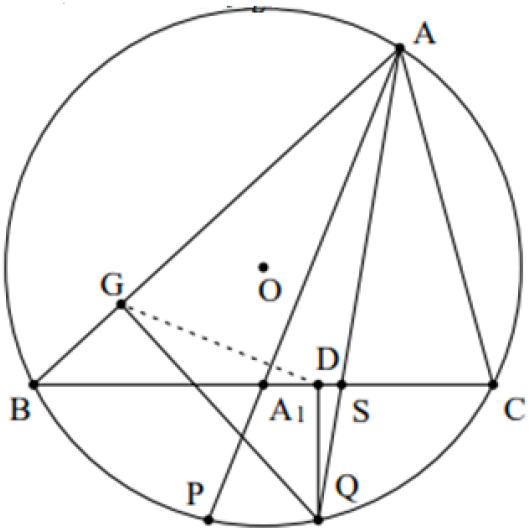

Example 94 : As shown in Figure 3, in $\triangle ABC$, O is the circumcenter, A_1 is the midpoint of BC, S is on BC, and $\angle BAA_1 = \angle SAC$, AA_1 intersects the circle O at P, AS intersects the circle O at Q, the feet of Q on BA and BC are G and D respectively. To prove: $AP \perp DG$.

$$\frac{A-P}{D-G}=\frac{A-P}{A-A_1}\frac{A-B}{B-G}\frac{A-Q}{A-S}\left(\frac{A-C}{A-Q}/\frac{B-C}{B-Q}\right)\left(\frac{A-S}{A-B}/\frac{A-C}{A-A_1}\right)\left(\frac{B-G}{B-Q}\frac{D-Q}{D-G}\right)\frac{B-C}{D-Q}$$