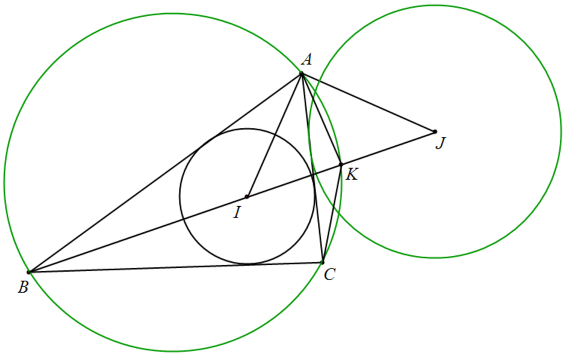
Example 1 67 : As shown in Figure 1, the distance from the intersection point of the bisector of an interior angle of a triangle and its circumscribed circle to the other two vertices and the distance between the center and the center of the triangle are equal. As shown in the figure, in $\triangle ABC$, I and J are the inner and outer centers respectively, and BI intersects the circumscribed circle of $\triangle ABC$ at K, then $KA = KC = KI = KJ$.



$$\frac{\frac{A-K}{A-I}}{\frac{I-A}{B-K}} = \frac{\frac{B-K}{B-C}}{\frac{B-A}{B-K}} \frac{\frac{A-C}{A-I}}{\frac{A-I}{A-B}} \frac{\frac{C-B}{C-A}}{\frac{K-B}{K-A}}.$$

Explanation: This identity states *that* $KA = KI$. At the same time, replace I *with* J, which proves that $KA = KJ$.

Variant: As shown in the figure, $\triangle$in ABC, the angle bisector of $\angle$ABC intersects the circumscribed circle $\triangle$*of* ABC at K, take points M and N *on* AB and AC *respectively*, so that $AM = AN$, and the straight line MN intersects BK and AK at P and Q, to prove: $KP = KQ$.