**Problem 4** Let $ABC$ be a triangle with $AB < AC < BC$. Let the incentre and incircle of triangle $ABC$ be $I$ and $\omega$, respectively. Let $X$ be the point on the line $BC$ different from $C$ such that the line through $X$ parallel to $AC$ is tangent to $\omega$. Similarly, let $Y$ zbe the point on line $BC$ different from $B$ such that the line through $Y$ parallel to $AB$ is tangent to $\omega$. Let $AI$ intersect the circumcircle of triangle $ABC$ again at $P \neq A$. Let $K$ and $L$ is the midpoints of $AC$ and $AB$, respectively.

Prove that $\angle KIL + \angle YPX = 180°$.

**Solutions.**