Problem 10. As shown in the figure below, triangle $ABC$ is inscribed in a circle. Line $\ell$ is tangent to the circle at $B$, and $D$ is the foot of the perpendicular from $C$ to $\ell$. Let $H$ be the foot of the altitude from $B$ to $AC$. Prove that line $DH$ is parallel to line $AB$. 

![Diagram of triangle ABC with line DH parallel to line AB]