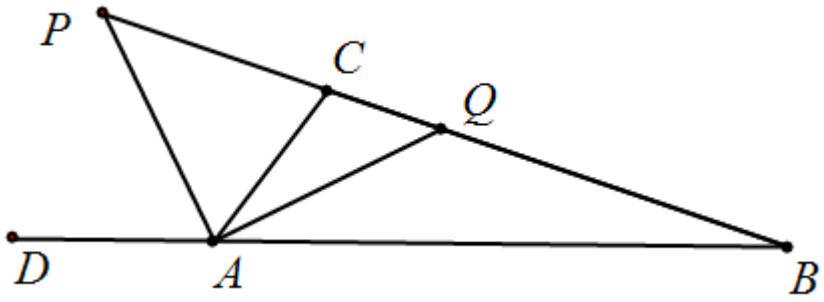
Example 120 : *As shown in Figure 3*, △side *BC* of *ABC* extends to *D, and the* bisector of ∠BAC intersects BC *at* K. *Prove* that ∠*ABD* + ∠ACD =2 ∠AKD .



$$\frac{\frac{B-A}{B-D}\frac{C-A}{C-D}}{\left(\frac{K-A}{K-D}\right)^2}=\frac{\frac{A-C}{A-K}}{\frac{A-K}{A-B}}\frac{(D-K)^2}{(B-D)(C-D)},$$