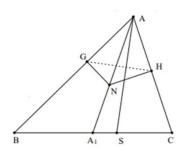Example 67 : As shown in Figure 3, in $\triangle ABC$, D and S are on BC, N is a point on A and D, and the feet of N on AB and AC are G and H respectively, $\angle BAD = \angle CAS$, to prove: $AS \perp GH$. _

Proof: $\dfrac{H-G}{S-A} = \left(\dfrac{A-B}{A-D} \Big/ \dfrac{A-S}{A-C}\right)\left(\dfrac{H-G}{H-A} \Big/ \dfrac{N-G}{N-A}\right)\dfrac{H-A}{A-C}\dfrac{A-D}{A-N}\dfrac{N-G}{A-B}$.

Promotion: As shown in the figure, in $\triangle ABC$, D and S are on BC, and the vertical feet of N on AB and AC are G and H respectively . To prove: three conditions ″ N is a point on AD ″″ $\angle BAD = \angle CAS$ ″ " $AS \perp GH$ " , if any two are established, the third one is also established .