



Example 116 : As shown in Figure 1, $\triangle ABC$, $\angle BAC = 90^\circ$, E is a point on BC , and $BE = AE$. $AD \perp BC$, $\angle BAD = 3 \angle CAD$. Prove : $AD = ED$.

$$\frac{E-A}{B-C} = \left(\frac{A-E}{B-A} \right)^2 \frac{\left(\frac{A-C}{A-D} \right)^3 \left(\frac{A-D}{C-B} \right)^3}{\frac{A-D}{A-B} \left(\frac{A-C}{A-B} \right)}.$$