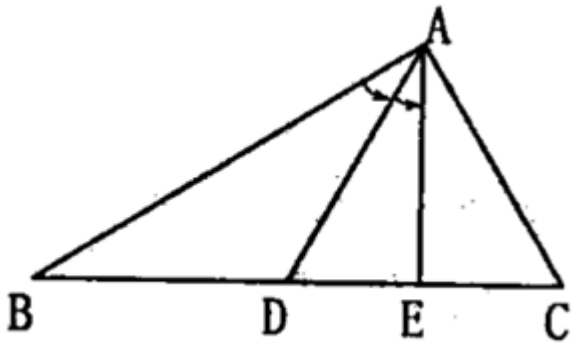
Example 24 : As shown in Figure 1, in $\triangle ABC$, $BC=2AC$, D is the midpoint of BC, E is the midpoint of DC, to prove: $\angle BAD=\angle DAE$.



Proof: Let $A=0$, $\frac{1}{2}\frac{\frac{C}{\frac{B+C}{2}}}{\frac{\frac{B+C}{2}}{\frac{B+C}{2}}-C}-\frac{\frac{\frac{B+3C}{4}}{\frac{B+C}{2}}}{\frac{\frac{B+C}{2}}{B}}+1=0$.