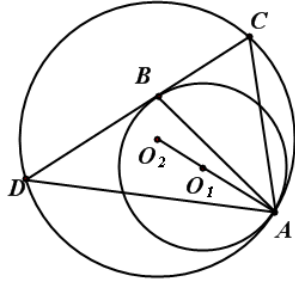


**Example 155 :** As shown in the figure, two circles are inscribed at a point  $A$ , and  $B$  the tangent line of the small circle at the point intersects with the larger circle  $C, D$ , then  $AB$  it will be bisected  $\angle CAD$ .



prove: 
$$\frac{\frac{A-B}{A-C}}{\frac{A-D}{A-B}} = \frac{\frac{B-A}{B-O_1}}{\frac{A-O_1}{A-O_2}} \left( \frac{A-O_2}{A-C} \frac{D-C}{D-A} \frac{O_1-B}{C-D} \right) \frac{A-O_1}{A-O_2}$$

Instructions  $\frac{A-O_2}{A-C} \frac{D-C}{D-A}$  are used  $\angle O_2AC + \angle ADC = 90^\circ$ .