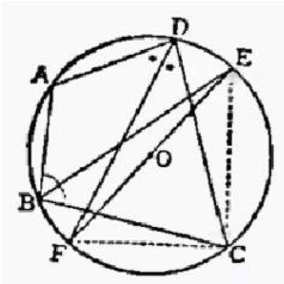

Example 209 : As shown in Figure 1 , *if the intersections of the* bisectors of the diagonals B and D *of* the inscribed quadrilateral $AECD$ and the circumscribed circle are E and F *respectively*, then EF is the diameter of the circle.

prove: $$-\left(\frac{C-E}{C-F}\right)^2=\frac{\frac{B-E}{B-C}\frac{D-C}{D-F}\frac{B-A}{B-C}}{\frac{B-A}{B-E}\frac{D-F}{D-A}\frac{A-D}{D-C}}\left(\frac{\frac{E-C}{E-F}}{\frac{D-C}{D-F}}\right)^2\left(\frac{\frac{B-C}{B-E}}{\frac{F-C}{F-E}}\right)^2$$

Another proof: $\angle CEF=\angle CDF=\frac{1}{2}\angle ADC$, $\angle CFE=\angle CBE=\frac{1}{2}\angle ABC$,

$\angle CEF+\angle CFE=\frac{1}{2}(\angle ADC+\angle ABC)=90^\circ$, thus $\angle ECF=90^\circ$.