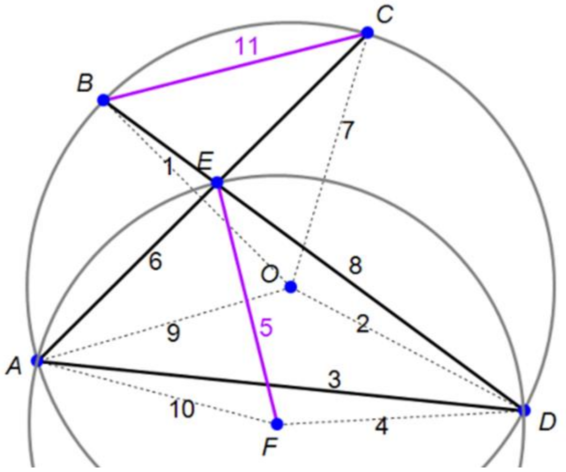

Example 1 83 : As shown in Figure 1, the quadrilateral $ABCD$ is inscribed in the circle O, E is the intersection point of the diagonals, F is the circumcenter of $\triangle AED$, prove: $BC \perp EF$.

$$\frac{B-C}{E-F}=\frac{\frac{B-C}{B-D}}{\frac{A-C}{A-D}}\left(\frac{B-D}{E-F}\frac{A-C}{A-D}\right),$$

Explanation : $\frac{B-D}{E-F}\frac{A-C}{A-D}$ *It* is a pure imaginary number that uses ∠DEF + ∠CAD = 90 ° .

$$\left(\frac{B-C}{E-F}\right)^2\left(\frac{\frac{E-F}{B-D}}{\frac{A-C}{A-D}}\right)^2\frac{\frac{C-O}{C-B}}{\frac{B-C}{B-O}}\frac{\frac{A-C}{A-O}}{\frac{C-O}{C-A}}\frac{\frac{B-D}{B-O}}{\frac{D-O}{D-B}}\frac{\frac{A-O}{A-D}}{\frac{D-A}{D-O}}=1,$$