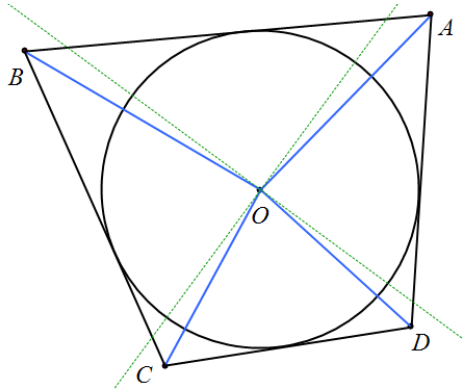
circle inscribed angle bisector vertical



Example 2 30 : As shown in the figure, the quadrilateral $ABCD$ *is* circumscribed on the circle O. Prove that the angle bisector OX *of* $\angle AOC$ *is perpendicular to* the angle bisector OY *of* $\angle$BOD .

$$\left(\frac{O-Y}{O-X}\right)^4=\left(\frac{\frac{A-D}{A-O}\frac{B-O}{B-C}\frac{C-B}{C-O}\frac{D-O}{D-A}}{\frac{A-O}{A-B}\frac{B-O}{B-A}\frac{C-O}{C-D}\frac{D-C}{D-O}}\right)\left(\frac{\frac{O-A}{O-X}\frac{O-Y}{O-B}}{\frac{O-X}{O-C}\frac{O-B}{O-Y}}\right)^2,$$