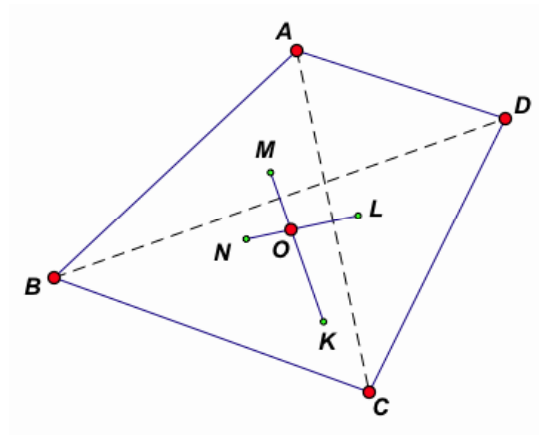


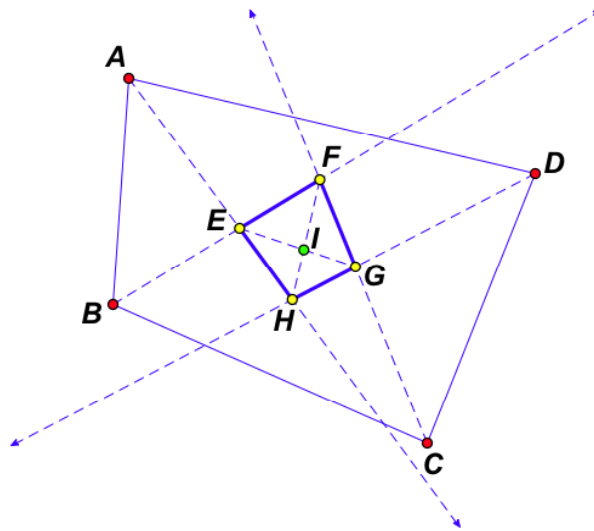
Proofs

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Proof Quasi-circumcentre

Since both K and M lie on the perpendicular bisector of the BD , all points on the line KM are equidistant from B and D . Similarly, all points on the line LN are equidistant from A and C . Thus, the intersection O of lines KM and LN is equidistant from the two pairs of opposite vertices.



Proof Quasi-incentre

Since E lies on angle bisectors of the angles A and B , it is equidistant from both AD and BC . Similarly, G is equidistant from AD and BC , and both H and F are equidistant from AB and CD . Hence, all points on the line EG are equidistant from AD and BC , and all points on the line FH are equidistant from AB and CD . Thus, the intersection I of EG and FH is equidistant from the two pairs of opposite sides.