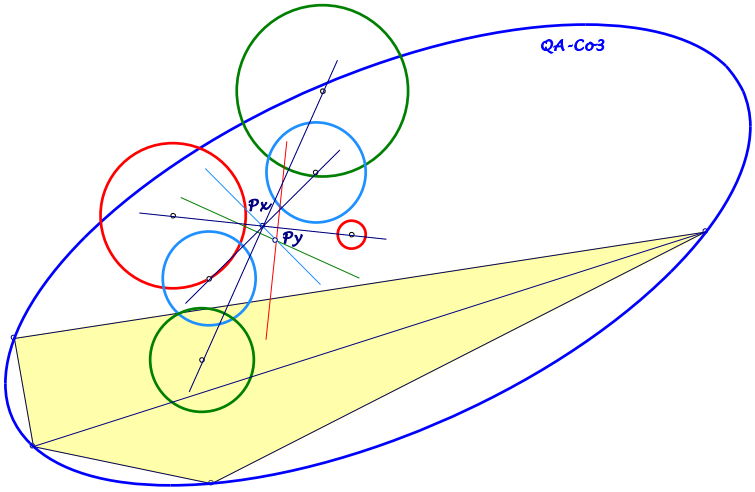
EQF-Note 2018-01-07

Background for these notes is:
Chris van Tienhoven:
Encyclopedia of Quadri-Figures and Poly Geometry
http://www.chrisvantienhoven.nl/

New QA-Points related to QA-P4 and QA-Co3

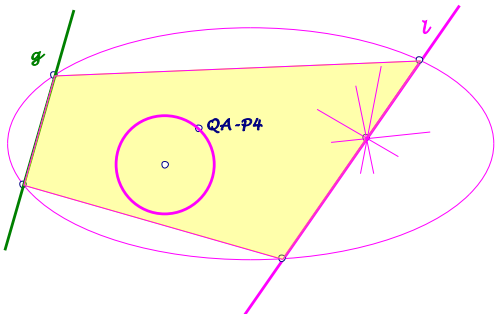
Starting with a special property of QA-P4, mentioned by Roland Stärk (EQF-Ref. [16],16), there are two new QA-points wrt the conic QA-Co3.



Roland Stärk describes the following property of *QA-P4*, which he named “Tangentialpunkt”:

- **If a conic is intersected by lines *l* of a line pencil and another line *g*, the locus of *QA-P4* for the intersection quadrangles is a circle.**

(This circle degenerates to a line, if the conic is an orthogonal hyperbola or if the line pencil consists of parallels.)



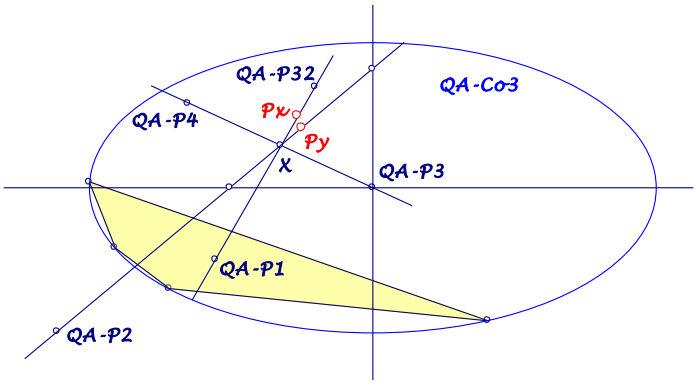
Here we consider the conic *QA-Co3* of a quadrangle,
… the line pencil of *QA-P3*, center of *QA-Co3*
… and the six lines of the quadrangle.

In this way we get six circles, three pairs for opposite sides of the quadrangle (see first figure).

- **The center lines of the three circle pairs have a common point P_x.**
- **The radical axes of the three circle pairs have a common point P_y.**

These two points have their connections in *QA*-geometry:
Let *X* be the intersection of *QA-P3.QA-P4* and *QA-P1.QA-P32*.

- **P_x is the midpoint of *X.QA-P32*.**
- **P_y is the midpoint of the intersections of the *QA-Co3*-axes and *X.QA-P2*.**



The points P_x, P_y can also be studied, taking any circumconic of the quadrangle and its center.

Eckart Schmidt
http://eckartschmidt.de
eckart_schmidt@t-online.de