

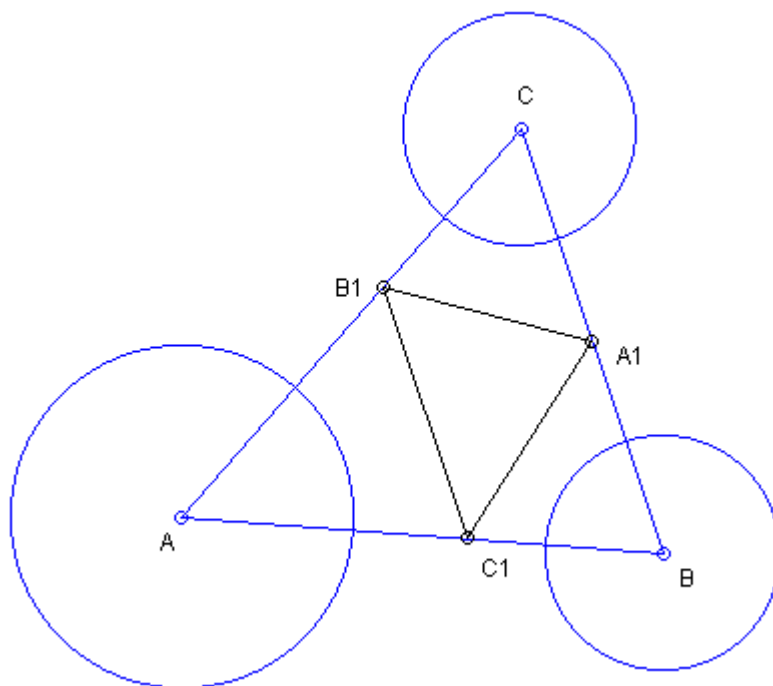
## Inner Johnson Triangles

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**Abstract.** By using the computer program "Machine for Questions and Answers", we find perspectives of Inner Johnson Triangles.

Given three circles (A),(B) and (C) with noncollinear centers A,B and C, respectively. Let  $A_1$  be the Internal Similitude Center of (B) and (C). Similarly define  $B_1$  and  $C_1$ . The triangle  $A_1B_1C_1$  is called the *Inner Johnson Triangle of circles (A), (B), (C)*.

See the Figure:

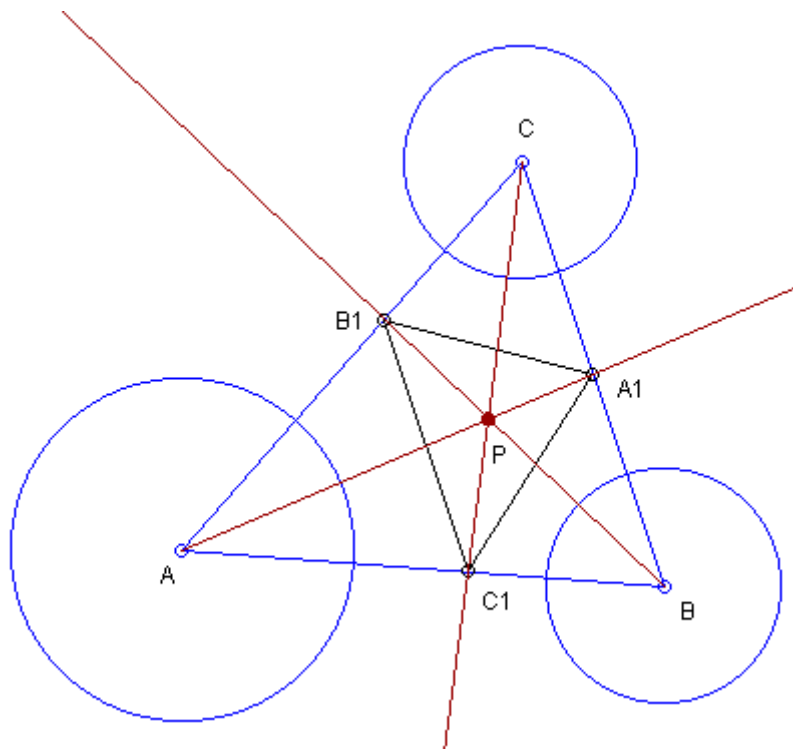


(A), (B), (C) - circles;  
 $A_1$  - internal similitude center of circles (B) and (C);  
 $B_1$  - internal similitude center of circles (C) and (A);  
 $C_1$  - internal similitude center of circles (A) and (B);  
 $A_1B_1C_1$  - Inner Johnson Triangle of circles (A), (B), (C).

It is well known (see e.g. the Weisstein's encyclopedia [5]) that triangle ABC and the Inner

Johnson Triangle of circles (A), (B), (C) are perspective.

See the Figure:



(A), (B), (C) - circles;

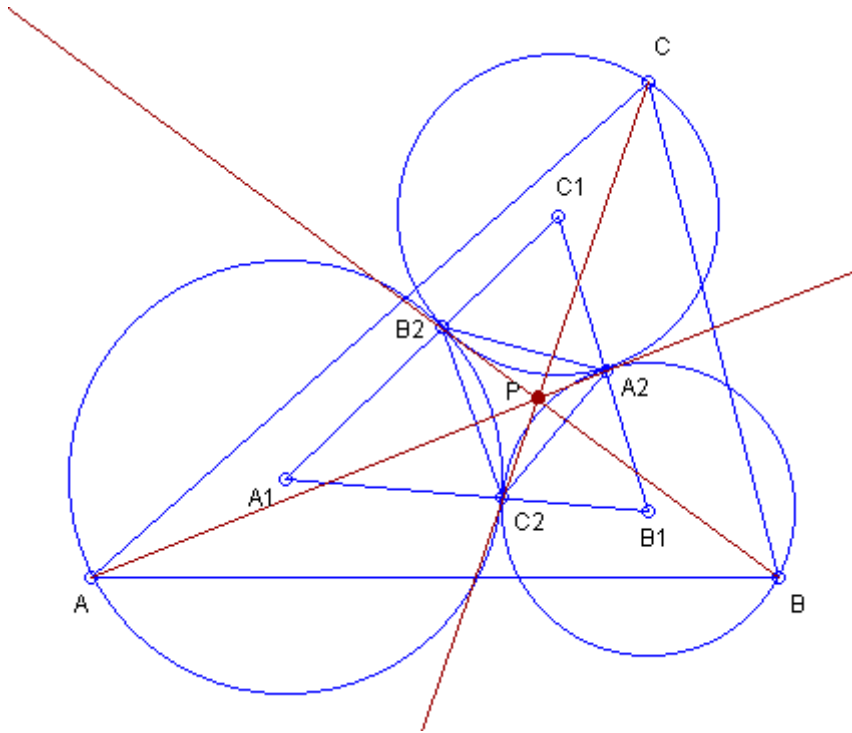
$A_1B_1C_1$  - Inner Johnson Triangle of circles (A), (B), (C);

P - Inner Johnson Perspector = perspector of triangles ABC and  $A_1B_1C_1$ .

Result 816 from the Quim Castellsaguer, The Triangles Web [1]:

Triangle ABC and the Inner Johnson Triangle of the Lucas Circles are perspective with perspector the Inner Kenmotsu Point.

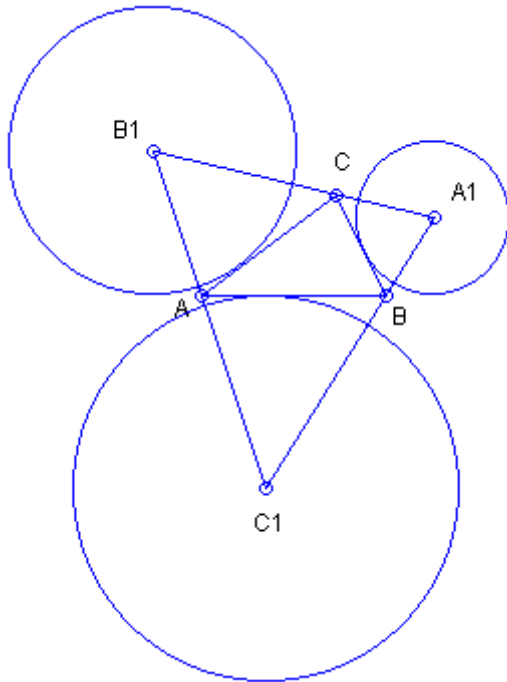
See the Figure:



$(A_1), (B_1), (C_1)$  - Lucas Circles;  
 $A_1B_1C_1$  - Lucas Central Triangle;  
 $A_2B_2C_2$  - Inner Johnson Triangle of the Lucas Circles = Lucas Contact Triangle;  
 $P$  - (Inner) Kenmotsu Point = perspector of triangles  $ABC$  and  $A_2B_2C_2$ .

The Inner Johnson Triangle of the Excircles coincides with triangle  $ABC$ .

See the Figure:



$(A_1), (B_1), (C_1)$  - Excircles.

### Examples

The Machine for Questions and Answers gives perspectives between triangles. Examples of perspectives between triangles and Inner Johnson triangles are given below. In the examples below the perspector is between the basic points.

Triangle ABC and the Inner Johnson Triangle of the Mixtilinear Incircles are perspective with perspector the Internal Center of Similitude of the Bevan Circle and the Incircle.

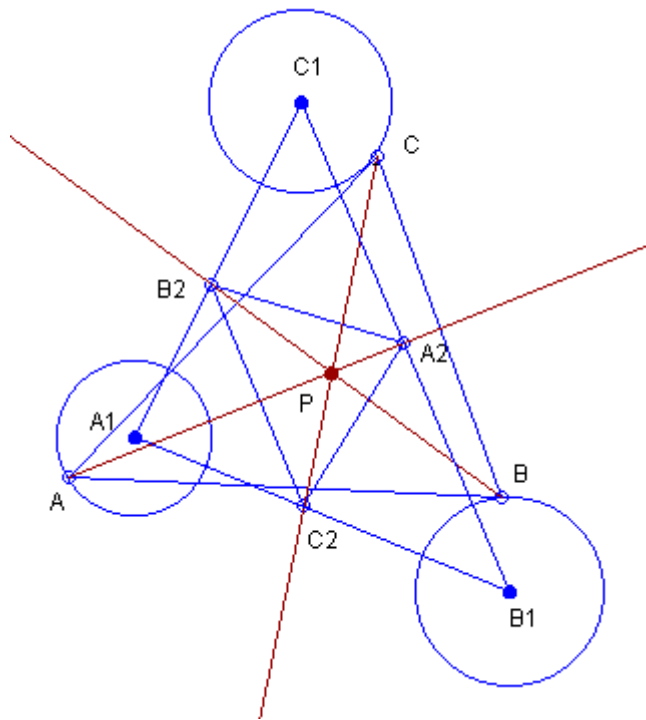
Triangle ABC and the Inner Johnson Triangle of the Soddy Circles are perspective with perspector the Gergonne Point.

Triangle ABC and the Inner Johnson Triangle of the Malfatti Circles are perspective with perspector the First Ajima-Malfatti Point.

Triangle ABC and the Inner Johnson Triangle of the Lucas Circles are perspective with perspector the Inner Kenmotu Point.

Triangle ABC and the Inner Johnson Triangle of the Neuberg Circles are perspective with perspector the Incenter.

See the Figure:



$(A_1), (B_1), (C_1)$  - Neuberg Circles;  
 $A_1B_1C_1$  - Neuberg Triangle;  
 $A_2B_2C_2$  - Inner Johnson Triangle of the Neuberg Circles;  
 $P$  - Incenter = perspector of triangles  $ABC$  and  $A_2B_2C_2$ .

Triangle  $ABC$  and the Inner Johnson Triangle of the Reflected Neuberg Circles are perspective with perspector the Incenter.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Incenter are perspective with perspector the Gergonne Point.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Circumcenter are homothetic with homothetic center the Centroid.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Orthocenter are perspective with perspector the Orthocenter.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the de Longchamps Point are perspective with perspector the Symmedian Point of the Anticomplementary Triangle.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Bevan Point are perspective with perspector the Nagel Point.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are perspective with perspector the Incenter.

Triangle  $ABC$  and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of

the Circumcenter are perspective with perspector the Symmedian Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Orthocenter are homothetic with homothetic center the Centroid.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the de Longchamps Point are perspective with perspector the Orthocenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Bevan Point are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Euler Triangle are homothetic with homothetic center the Orthocenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Feuerbach Triangle are perspective with perspector the Second Feuerbach Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Extangents Triangle are perspective with perspector the Orthocenter of the Intouch Triangle.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Mixtilinear Triangle are perspective with perspector the Incenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Mid-Arc Triangle are perspective with perspector the Incenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Triangle of the reflections are perspective with perspector the Orthocenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the First Brocard Triangle are perspective with perspector the Isotomic Conjugate of the Symmedian Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Second Brocard Triangle are perspective with perspector the Symmedian Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Third Brocard Triangle are perspective with perspector the Third Power Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Fourth Brocard Triangle are perspective with perspector the Centroid.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Yff Central Triangle are perspective with perspector the Incenter of the Intouch Triangle.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Lucas Central Triangle are perspective with perspector the Circumcenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Neuberg Triangle are perspective with perspector the Tarry Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Johnson Triangle are homothetic with homothetic center the Nine-Point Center.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Inner Johnson-Yff Triangle are homothetic with homothetic center the Incenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Outer Johnson-Yff Triangle are homothetic with homothetic center the Incenter.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Apollonius Triangle are perspective with perspector the Apollonius Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Inner Gallatly-Kiepert Triangle are perspective with perspector the Isotomic Conjugate of the Symmedian Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the Inner Lemoine-Kiepert Triangle are perspective with perspector the Tarry Point.

Triangle ABC and the Inner Johnson Triangle of the Excircles of the First Spieker-Kiepert Triangle are perspective with perspector the External Center of Similitude of the Apollonius Circle and the Nine-Point Circle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Incentral Triangle are perspective with perspector the Perspector of Triangle ABC and the Intouch Triangle of the Incentral Triangle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Medial Triangle are perspective with perspector the Nagel Point.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Orthic Triangle are perspective with perspector the Perspector of Triangle ABC and the Intouch Triangle of the Orthic Triangle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Symmedian Triangle are perspective with perspector the Perspector of Triangle ABC and the Intouch Triangle of the Symmedian Triangle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Intouch Triangle are perspective with perspector the Congruent Isoscelizers Point.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Extouch Triangle are perspective with perspector the Perspector of Triangle ABC and the Intouch Triangle of the Extouch Triangle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Pedal Triangle of the Incenter are perspective with perspector the Congruent Isoscelizers Point.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Pedal Triangle of the Circumcenter are perspective with perspector the Nagel Point.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Pedal Triangle of the Orthocenter are perspective with perspector the Perspector of Triangle ABC and the Intouch Triangle of the Orthic Triangle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Pedal Triangle of the Bevan Point are perspective with perspector the Perspector of Triangle ABC and the Intouch Triangle of the Extouch Triangle.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Malfatti Central Triangle are perspective with perspector the First Ajima-Malfatti Point.

Triangle ABC and the Inner Johnson Triangle of the Soddy Circles of the Lucas Central Triangle are perspective with perspector the Inner Kenmotu Point.

Triangle ABC and the Inner Johnson Triangle of the Lucas Circles of the Intouch Triangle are perspective with perspector the Center of the Inner Soddy Circle.

Triangle ABC and the Inner Johnson Triangle of the Lucas Circles of the Pedal Triangle of the Incenter are perspective with perspector the Center of the Inner Soddy Circle.

Triangle ABC and the Inner Johnson Triangle of the Neuberg Circles of the First Brocard Triangle are perspective with perspector the Incenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Medial Triangle are homothetic with homothetic center the Nine-Point Center.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Orthic Triangle are perspective with perspector the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Anticomplementary Triangle are homothetic with homothetic center the Skordev Point.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Orthocenter are perspective with perspector the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Circumcenter are homothetic with homothetic center the Nine-Point Center.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Orthocenter are perspective with perspector the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Orthocenter are homothetic with homothetic center the Skordev Point.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the de Longchamps Point are perspective with perspector the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Circumcevian Triangle of the Circumcenter are homothetic with homothetic center the Centroid.



The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Circum-Orthic Triangle are perspective with perspector the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Triangle of the reflections are perspective with perspector the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Johnson Triangle are homothetic with homothetic center the Center of the Orthocentroidal Circle.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Inner Johnson-Yff Triangle are homothetic with homothetic center the Center of the Outer Johnson-Yff Circle.

The Euler Triangle and the Inner Johnson Triangle of the Excircles of the Outer Johnson-Yff Triangle are homothetic with homothetic center the Center of the Inner Johnson-Yff Circle.

The Euler Triangle and the Inner Johnson Triangle of the Soddy Circles of the Euler Triangle are perspective with perspector the Midpoint of the Gergonne Point and the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Neuberg Circles of the Euler Triangle are perspective with perspector the Midpoint of the Incenter and the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of the Euler Triangle are perspective with perspector the Midpoint of the Incenter and the Orthocenter.

The Euler Triangle and the Inner Johnson Triangle of the Triad of the Hexyl Circles of the Corner Triangles of the Tangential Triangle are perspective with perspector the Circumcenter.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Incentral Triangle are perspective with perspector the First Feuerbach Point.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Second Feuerbach Point are perspective with perspector the Second Feuerbach Point.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Excentral Triangle are perspective with perspector the Nine-Point Center.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Second Feuerbach Point are perspective with perspector the Second Feuerbach Point.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are perspective with perspector the Nine-Point Center.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Circumcevian Triangle of the Second Feuerbach Point are perspective with perspector the

Second Feuerbach Point.

The Feuerbach Triangle and the Inner Johnson Triangle of the Excircles of the Apollonius Triangle are perspective with perspector the Spieker Center.

The Feuerbach Triangle and the Inner Johnson Triangle of the Triad of the Incircles of the Triangulation Triangles of the Second Feuerbach Point are perspective with perspector the Second Feuerbach Point.

The Intangents Triangle and the Inner Johnson Triangle of the Soddy Circles are perspective with perspector the Incenter.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Incentral Triangle are perspective with perspector the Internal Center of Similitude of the Incircle and the Circumcircle.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Intouch Triangle are perspective with perspector the Incenter.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Tangential Triangle are homothetic with homothetic center the Internal Center of Similitude of the Incircle and the Circumcircle.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Incenter are perspective with perspector the Incenter.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Circumcenter are homothetic with homothetic center the Internal Center of Similitude of the Incircle and the Circumcircle.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Bevan Point are perspective with perspector the Incenter.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Extangents Triangle are homothetic with homothetic center the Internal Center of Similitude of the Incircle and the Circumcircle.

The Intangents Triangle and the Inner Johnson Triangle of the Excircles of the Hexyl Triangle are perspective with perspector the Incenter.

The Intangents Triangle and the Inner Johnson Triangle of the Soddy Circles of the Inner Johnson-Yff Triangle are perspective with perspector the Incenter.

The Intangents Triangle and the Inner Johnson Triangle of the Soddy Circles of the Outer Johnson-Yff Triangle are perspective with perspector the Incenter.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Incentral Triangle are perspective with perspector the Internal Center of Similitude of the Incircle and the Circumcircle.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Orthic Triangle are homothetic with homothetic center the Clawson Point.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Extouch Triangle are perspective with perspector the Bevan Point.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Excentral Triangle are perspective with perspector the Bevan Point.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Tangential Triangle are homothetic with homothetic center the Internal Center of Similitude of the Incircle and the Circumcircle.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Orthocenter are homothetic with homothetic center the Clawson Point.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Bevan Point are perspective with perspector the Bevan Point.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are perspective with perspector the Bevan Point.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Circumcenter are homothetic with homothetic center the Internal Center of Similitude of the Incircle and the Circumcircle.

The Extangents Triangle and the Inner Johnson Triangle of the Excircles of the Intangents Triangle are homothetic with homothetic center the Internal Center of Similitude of the Incircle and the Circumcircle.

The Extangents Triangle and the Inner Johnson Triangle of the Soddy Circles of the Circumcevian Triangle of the Circumcenter are perspective with perspector the Bevan Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Excircles of the Medial Triangle are perspective with perspector the Circumcenter.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Excircles of the Anticomplementary Triangle are perspective with perspector the Nagel Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Excircles of the Tangential Triangle are perspective with perspector the Circumcenter.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Neuberg Circles of the Anticomplementary Triangle are perspective with perspector the Nagel Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Neuberg Circles of the Antipedal Triangle of the Orthocenter are perspective with perspector the Nagel Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of

the Anticomplementary Triangle are perspective with perspector the Nagel Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of the Antipedal Triangle of the Orthocenter are perspective with perspector the Nagel Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of the First Brocard Triangle are perspective with perspector the Nagel Point.

The Fuhrmann Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of the Inner Gallatly-Kiepert Triangle are perspective with perspector the Nagel Point.

The Mid-Arc Triangle and the Inner Johnson Triangle of the Soddy Circles are perspective with perspector the Incenter of the Intouch Triangle.

The Mid-Arc Triangle and the Inner Johnson Triangle of the Neuberg Circles are perspective with perspector the Incenter.

The Mid-Arc Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles are perspective with perspector the Incenter.

The Mid-Arc Triangle and the Inner Johnson Triangle of the Excircles of the Incentral Triangle are perspective with perspector the Incenter.

The Mid-Arc Triangle and the Inner Johnson Triangle of the Excircles of the Intouch Triangle are perspective with perspector the Incenter of the Intouch Triangle.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Orthic Triangle are perspective with perspector the Orthocenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Nine-Point Center are perspective with perspector the Circumcenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Outer Fermat Point are perspective with perspector the First Isodynamic Point.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Inner Fermat Point are perspective with perspector the Second Isodynamic Point.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Excentral Triangle are perspective with perspector the Evans Perspector.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Orthocenter are perspective with perspector the Orthocenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Orthocenter are perspective with perspector the Orthocenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Pedal

Triangle of the Nine-Point Center are homothetic with homothetic center the Centroid.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are perspective with perspector the Evans Perspector.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the de Longchamps Point are perspective with perspector the Orthocenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Circum-Orthic Triangle are perspective with perspector the Orthocenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Euler Triangle are perspective with perspector the Orthocenter.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Outer Fermat Triangle are perspective with perspector the Second Isodynamic Point.

The Reflection Triangle and the Inner Johnson Triangle of the Excircles of the Inner Fermat Triangle are perspective with perspector the First Isodynamic Point.

The First Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Second Brocard Triangle are perspective with perspector the Centroid.

The Second Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Tangential Triangle are perspective with perspector the Symmedian Point.

The Second Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Circumcenter are perspective with perspector the Symmedian Point.

The Second Brocard Triangle and the Inner Johnson Triangle of the Excircles of the First Brocard Triangle are perspective with perspector the Centroid.

The Second Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Inner Gallatly-Kiepert Triangle are perspective with perspector the Centroid.

The Third Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Anticomplementary Triangle are perspective with perspector the Perspector of the Symmedian Triangle and the Anticomplementary Triangle.

The Third Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Orthocenter are perspective with perspector the Perspector of the Symmedian Triangle and the Anticomplementary Triangle.

The Third Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Neuberg Triangle are perspective with perspector the Orthocenter.

The Third Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Outer Gallatly-Kiepert Triangle are perspective with perspector the Perspector of the Symmedian

Triangle and the Anticomplementary Triangle.

The Third Brocard Triangle and the Inner Johnson Triangle of the Excircles of the Inner Lemoine-Kiepert Triangle are perspective with perspector the Orthocenter.

The Yff Central Triangle and the Inner Johnson Triangle of the Soddy Circles are homothetic with homothetic center the Yff Center of Conguence.

The Yff Central Triangle and the Inner Johnson Triangle of the Excircles of the Intouch Triangle are homothetic with homothetic center the Yff Center of Conguence.

The Yff Central Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Yff Center of Conguence are perspective with perspector the Congruent Isoscelizers Point.

The Yff Central Triangle and the Inner Johnson Triangle of the Excircles of the Excentral Triangle are homothetic with homothetic center the Congruent Isoscelizers Point.

The Yff Central Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Incenter are homothetic with homothetic center the Yff Center of Conguence.

The Yff Central Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are homothetic with homothetic center the Congruent Isoscelizers Point.

The Yff Central Triangle and the Inner Johnson Triangle of the Excircles of the Circum-Incentral Triangle are homothetic with homothetic center the Dimovski Point.

The de Villiers Triangle and the Inner Johnson Triangle of the Incenter-Excenter Circles are perspective with perspector the Incenter.

The de Villiers Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Yff Center of Conguence are perspective with perspector the Incenter.

The de Villiers Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Congruent Isoscelizers Point are perspective with perspector the Incenter.

The de Villiers Triangle and the Inner Johnson Triangle of the Neuberg Circles of the Malfatti Central Triangle are perspective with perspector the Radical Center of the Malfatti Circles.

The de Villiers Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of the Malfatti Central Triangle are perspective with perspector the Radical Center of the Malfatti Circles.

The Malfatti Squares Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Symmedian Point are homothetic with homothetic center the Centroid.

The Lucas Central Triangle and the Inner Johnson Triangle of the Excircles of the

Tangential Triangle are perspective with perspector the Inner Kenmotu Point.

The Lucas Central Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Circumcenter are perspective with perspector the Inner Kenmotu Point.

The Lucas Central Triangle and the Inner Johnson Triangle of the Excircles of the Circumcevian Triangle of the Circumcenter are perspective with perspector the Circumcenter.

The Lucas Central Triangle and the Inner Johnson Triangle of the Excircles of the Inner Lucas Triangle are perspective with perspector the Center of the Inner Lucas Circle.

The Lucas Central Triangle and the Inner Johnson Triangle of the Triad of the Circumcircles of the Triangulation Triangles of the First Isodynamic Point are perspective with perspector the Circumcenter.

The Inner Lucas Triangle and the Inner Johnson Triangle of the Excircles of the Lucas Central Triangle are perspective with perspector the Center of the Inner Lucas Circle.

The Neuberg Triangle and the Inner Johnson Triangle of the Excircles of the Medial Triangle are perspective with perspector the Circumcenter.

The Neuberg Triangle and the Inner Johnson Triangle of the Excircles of the Tangential Triangle are perspective with perspector the Circumcenter.

The Neuberg Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Third Power Point are perspective with perspector the Center of the Brocard Circle.

The Neuberg Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Third Power Point are homothetic with homothetic center the Symmedian Point.

The Hexyl Triangle and the Inner Johnson Triangle of the Soddy Circles are homothetic with homothetic center the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Intouch Triangle are homothetic with homothetic center the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Schiffler Point are perspective with perspector the Circumcenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Excentral Triangle are homothetic with homothetic center the Circumcenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Mittenpunkt are perspective with perspector the Bevan Point.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Clawson Point are perspective with perspector the Orthocenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Pedal Triangle of the Incenter are homothetic with homothetic center the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are homothetic with homothetic center the Circumcenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Bevan Point are perspective with perspector the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Circumcevian Triangle of the Circumcenter are perspective with perspector the Bevan Point.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Intangents Triangle are perspective with perspector the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Excircles of the Second Spieker-Kiepert Triangle are perspective with perspector the Orthocenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Soddy Circles of the Inner Johnson-Yff Triangle are homothetic with homothetic center the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Soddy Circles of the Outer Johnson-Yff Triangle are homothetic with homothetic center the Incenter.

The Hexyl Triangle and the Inner Johnson Triangle of the Neuberg Circles of the Circumcevian Triangle of the Circumcenter are perspective with perspector the Bevan Point.

The Hexyl Triangle and the Inner Johnson Triangle of the Reflected Neuberg Circles of the Circumcevian Triangle of the Circumcenter are perspective with perspector the Bevan Point.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Incentral Triangle are perspective with perspector the Internal Center of Similitude of the Apollonius Circle and the Incircle.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Symmedial Triangle are perspective with perspector the Danneels-Apollonius Prespector.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Cevian Triangle of the Apollonius Point are perspective with perspector the Apollonius Point.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Excentral Triangle are perspective with perspector the Center of the Apollonius Circle.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Anticevian Triangle of the Apollonius Point are perspective with perspector the Apollonius Point.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Antipedal Triangle of the Incenter are perspective with perspector the Center of the Apollonius Circle.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the



Circumcevian Triangle of the Apollonius Point are perspective with perspector the Apollonius Point.

The Apollonius Triangle and the Inner Johnson Triangle of the Excircles of the Feuerbach Triangle are perspective with perspector the Spieker Center.

The Apollonius Triangle and the Inner Johnson Triangle of the Triad of the Incircles of the Triangulation Triangles of the Apollonius Point are perspective with perspector the Apollonius Point.

### **Invitation**

The reader is invited to submit a note/paper containing

- synthetic proofs of theorems from this paper,
- or, applications of theorems from this paper,
- or, additional references related to this paper.

### **Definitions and Conventions**

We use the definitions and conventions in accordance with [1 - 6] and papers published in this journal.

### **The Level**

The Machine for Questions and Answers is used to produce results in this paper. Currently the Machine has 6 levels of depths - 0,1,2,3,4,5. We use for this paper the level 0, that is, the Machine produces only elementary results. If we need deeper investigation, we have to use a level bigger than 0. Since the Machine for Questions and Answers produces too many results, it is suitable we to use bigger levels upon request, that is, for specific questions.

### **Thanks**

The figures in this note are produced by using the program C.a.R. (Compass and Ruler), an amazing program created by Rene Grothmann. The Grothmann's program is available for download in the Web: [Rene Grothmann's C.a.R.](#). It is free and open source. The reader may verify easily the statements of this paper by using C.a.R. Many thanks to Rene Grothmann for his wonderful program.

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