

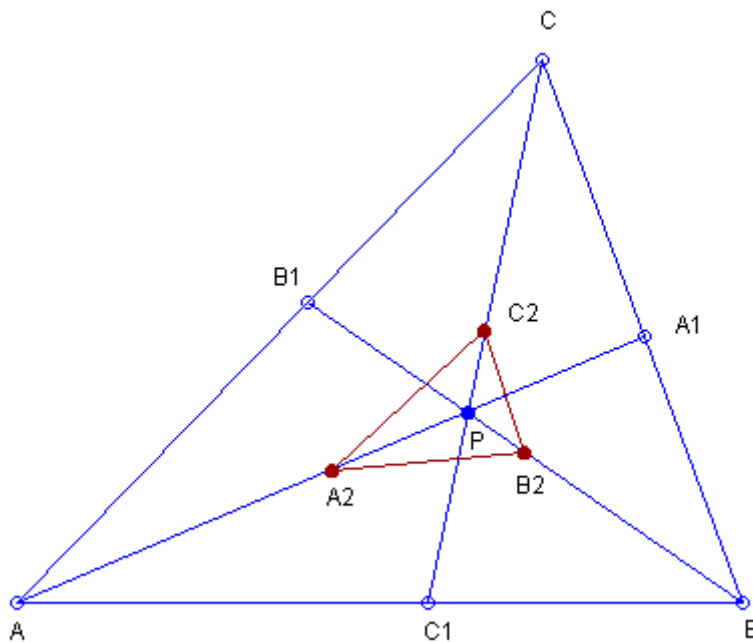
## Half-Cevian Triangles

Deko Dekov

**Abstract.** We define Half-Cevian triangles and use the computer program "Machine for Questions and Answers" to study perspectives between Half-Cevian triangles and other triangles.

Given a triangle  $ABC$  and a Triangle Center, labeled by  $P$ . Construct cevians  $PA_1$ ,  $PB_1$ , and  $PC_1$ . Construct the midpoints  $A_2$ ,  $B_2$ , and  $C_2$  of segments  $PA_1$ ,  $PB_1$ , and  $PC_1$ , respectively. We call triangle  $A_2B_2C_2$  the *Half-Cevian Triangle of the Triangle Center*.

See the Figure:



$P$  - Triangle Center;

$PA_1$ ,  $PB_1$ ,  $PC_1$  - cevians through  $P$ ;

$A_2$ ,  $B_2$ , and  $C_2$  midpoints of segments  $PA_1$ ,  $PB_1$ , and  $PC_1$ , respectively;

$A_2B_2C_2$  - Half-Cevian Triangle of the Triangle Center.

In this Figure:

$P$  - Incenter;

$PA_1$ ,  $PB_1$ ,  $PC_1$  - cevians through  $P$ ;

$A_2$ ,  $B_2$ , and  $C_2$  midpoints of segments  $PA_1$ ,  $PB_1$ , and  $PC_1$ , respectively;

$A_2B_2C_2$  - Half-Cevian Triangle of the Incenter.

If the Triangle Center is the Orthocenter, then the Half-Cevian Triangle of the Orthocenter is the known Half-Altitude Triangle.

The following result is well known:

The Medial Triangle and the Half-Altitude Triangle are perspective with perspector the Symmedian Point.

### **Examples**

The Machine for Questions and Answers produces theorems on perspectives between Half-Cevian triangles and other triangles. A few examples are given below.

The Incentral Triangle and the Half-Cevian Triangle of the Spieker Center are perspective.

The Incentral Triangle and the Half-Cevian Triangle of the Clawson Point are perspective.

The Incentral Triangle and the Half-Cevian Triangle of the Grinberg Point are perspective.

For any Triangle Center, the Medial Triangle and the Half-Cevian Triangle of the Triangle Center are perspective.

The Orthic Triangle and the Half-Cevian Triangle of the Circumcenter are perspective.

The Orthic Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective.

The Orthic Triangle and the Half-Cevian Triangle of the Kosnita Point are perspective.

The Orthic Triangle and the Half-Cevian Triangle of the Prasolov Point are perspective.

The Symmedial Triangle and the Half-Cevian Triangle of the Brocard Midpoint are perspective.

The Intouch Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Intouch Triangle and the Half-Altitude Triangle are perspective.

The Intouch Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic.

The Intouch Triangle and the Half-Cevian Triangle of the Mittenpunkt are perspective.

The Intouch Triangle and the Half-Cevian Triangle of the Schiffler Point are perspective.

The Extouch Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Extouch Triangle and the Half-Altitude Triangle are perspective.

The Extouch Triangle and the Half-Cevian Triangle of the Gergonne Point are homothetic.

The Extouch Triangle and the Half-Cevian Triangle of the Mittenpunkt are perspective.

The Extouch Triangle and the Half-Cevian Triangle of the Schiffler Point are perspective.

The Excentral Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Excentral Triangle and the Half-Altitude Triangle are perspective.

The Excentral Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic.

The Excentral Triangle and the Half-Cevian Triangle of the Spieker Center are perspective.

The Excentral Triangle and the Half-Cevian Triangle of the Bevan Point are perspective.

The Anticomplementary Triangle and the Half-Cevian Triangle of the Centroid are homothetic.

The Tangential Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective.

The Circum-Incentral Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Circum-Incentral Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic.

The Circum-Medial Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Circum-Medial Triangle and the Half-Cevian Triangle of the Circumcenter are perspective.

The Circum-Medial Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective.

The Circum-Orthic Triangle and the Half-Altitude Triangle are perspective.

The Euler Triangle and the Half-Cevian Triangle of the Centroid are homothetic.

The Euler Triangle and the Half-Altitude Triangle are perspective.

The Feuerbach Triangle and the Half-Cevian Triangle of the Spieker Center are perspective.

The Feuerbach Triangle and the Half-Cevian Triangle of the Second Feuerbach Point are perspective.

The Extangents Triangle and the Half-Cevian Triangle of the Spieker Center are perspective.

The Mixtilinear Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Mid-Arc Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Reflection Triangle and the Half-Altitude Triangle are perspective.

The First Brocard Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The First Brocard Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Second Brocard Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective.

The Third Brocard Triangle and the Half-Cevian Triangle of the Third Power Point are perspective.

The Fourth Brocard Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Yff Central Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic.

The de Villiers Triangle and the Half-Cevian Triangle of the First de Villiers Point are perspective.

The Malfatti Central Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Lucas Central Triangle and the Half-Cevian Triangle of the Circumcenter are perspective.

The Inner Lucas Triangle and the Half-Cevian Triangle of the Radical Center of the Lucas Circles are perspective.

The Neuberg Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Neuberg Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Reflected Neuberg Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Reflected Neuberg Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Hexyl Triangle and the Half-Cevian Triangle of the Gergonne Point are perspective.

The Hexyl Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic.

The Johnson Triangle and the Half-Cevian Triangle of the Centroid are homothetic.

The Johnson Triangle and the Half-Cevian Triangle of the Nine-Point Center are

perspective.

The Johnson Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Inner Johnson-Yff Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Inner Johnson-Yff Triangle and the Half-Cevian Triangle of the Centroid are homothetic.

The Inner Johnson-Yff Triangle and the Half-Cevian Triangle of the Gergonne Point are perspective.

The Outer Johnson-Yff Triangle and the Half-Cevian Triangle of the Incenter are perspective.

The Outer Johnson-Yff Triangle and the Half-Cevian Triangle of the Centroid are homothetic.

The Outer Johnson-Yff Triangle and the Half-Cevian Triangle of the Gergonne Point are perspective.

The Apollonius Triangle and the Half-Cevian Triangle of the Spieker Center are perspective.

The Apollonius Triangle and the Half-Cevian Triangle of the Apollonius Point are perspective.

The Outer Fermat Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Outer Fermat Triangle and the Half-Cevian Triangle of the Outer Napoleon Point are perspective.

The Outer Fermat Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Inner Fermat Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Inner Fermat Triangle and the Half-Cevian Triangle of the Inner Napoleon Point are perspective.

The Inner Fermat Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Outer Napoleon Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Outer Napoleon Triangle and the Half-Cevian Triangle of the Outer Fermat Point are perspective.

The Outer Napoleon Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Inner Napoleon Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Inner Napoleon Triangle and the Half-Cevian Triangle of the Inner Fermat Point are perspective.

The Inner Napoleon Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Outer Vecten Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Outer Vecten Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

The Inner Vecten Triangle and the Half-Cevian Triangle of the Centroid are perspective.

The Inner Vecten Triangle and the Half-Cevian Triangle of the de Longchamps Point are perspective.

We specify the perspector provided they between the basic points. The other perspector could be described upon request.

The Incentral Triangle and the Half-Cevian Triangle of the Spieker Center are perspective with perspector the Complement of the Spieker Center.

The Medial Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Grünberg Point.

The Medial Triangle and the Half-Altitude Triangle are perspective with perspector the Symmedian Point.

The Medial Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective with perspector the Brocard Midpoint.

The Medial Triangle and the Half-Cevian Triangle of the Gergonne Point are perspective with perspector the Incenter.

The Medial Triangle and the Half-Cevian Triangle of the Nagel Point are perspective with perspector the Mittenpunkt.

The Orthic Triangle and the Half-Cevian Triangle of the Circumcenter are perspective with perspector the Nine-Point Center.

The Orthic Triangle and the Half-Cevian Triangle of the Prasolov Point are perspective with perspector the Circumcenter.

The Intouch Triangle and the Half-Altitude Triangle are perspective with perspector the

Isogonal Conjugate of the Mittenpunkt.

The Intouch Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic with homothetic center the Centroid.

The Intouch Triangle and the Half-Cevian Triangle of the Mittenpunkt are perspective with perspector the Complement of the Mittenpunkt.

The Extouch Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Spieker Center.

The Extouch Triangle and the Half-Altitude Triangle are perspective with perspector the Incenter.

The Extouch Triangle and the Half-Cevian Triangle of the Gergonne Point are homothetic with homothetic center the Centroid.

The Excentral Triangle and the Half-Altitude Triangle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Excentral Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic with homothetic center the Mittenpunkt.

The Excentral Triangle and the Half-Cevian Triangle of the Spieker Center are perspective with perspector the Centroid.

The Anticomplementary Triangle and the Half-Cevian Triangle of the Centroid are homothetic with homothetic center the Centroid.

The Tangential Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective with perspector the Symmedian Point.

The Circum-Incentral Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Incenter.

The Circum-Incentral Triangle and the Half-Cevian Triangle of the Nagel Point are homothetic with homothetic center the Internal Center of Similitude of the Circumcircle and the Spieker Circle.

The Circum-Medial Triangle and the Half-Cevian Triangle of the Centroid are perspective with perspector the Centroid.

The Circum-Orthic Triangle and the Half-Altitude Triangle are perspective with perspector the Orthocenter.

The Euler Triangle and the Half-Cevian Triangle of the Centroid are homothetic with homothetic center the Circumcenter.

The Euler Triangle and the Half-Altitude Triangle are perspective with perspector the

Orthocenter.

The Feuerbach Triangle and the Half-Cevian Triangle of the Second Feuerbach Point are perspective with perspector the Second Feuerbach Point.

The Mixtilinear Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Incenter.

The Mid-Arc Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Incenter.

The Reflection Triangle and the Half-Altitude Triangle are perspective with perspector the Orthocenter.

The Second Brocard Triangle and the Half-Cevian Triangle of the Symmedian Point are perspective with perspector the Symmedian Point.

The Third Brocard Triangle and the Half-Cevian Triangle of the Third Power Point are perspective with perspector the Third Power Point.

The Fourth Brocard Triangle and the Half-Cevian Triangle of the Centroid are perspective with perspector the Centroid.

The de Villiers Triangle and the Half-Cevian Triangle of the First de Villiers Point are perspective with perspector the First de Villiers Point.

The Malfatti Central Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Incenter.

The Lucas Central Triangle and the Half-Cevian Triangle of the Circumcenter are perspective with perspector the Circumcenter.

The Johnson Triangle and the Half-Cevian Triangle of the Nine-Point Center are perspective with perspector the Nine-Point Center.

The Inner Johnson-Yff Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Incenter.

The Outer Johnson-Yff Triangle and the Half-Cevian Triangle of the Incenter are perspective with perspector the Incenter.

The Apollonius Triangle and the Half-Cevian Triangle of the Apollonius Point are perspective with perspector the Apollonius Point.

### **Half-Altitude Triangle**

Given a triangle, the Machine for Questions and Answers gives us examples of perspectives between the given triangle and other triangles. We consider the Half-Altitude Triangle (The Half-Cevian Triangle of the Orthocenter). A few examples of perspectives are given below.



The Half-Altitude Triangle and the Medial Triangle are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Intouch Triangle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Extouch Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Cevian Triangle of the de Longchamps Point are perspective with perspector the Circumcenter.

The Half-Altitude Triangle and the Excentral Triangle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Anticevian Triangle of the Circumcenter are homothetic with homothetic center the Symmedian Point.

The Half-Altitude Triangle and the Anticevian Triangle of the de Longchamps Point are perspective with perspector the Centroid.

The Half-Altitude Triangle and the Anticevian Triangle of the Bevan Point are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Pedal Triangle of the Incenter are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Pedal Triangle of the Circumcenter are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Pedal Triangle of the de Longchamps Point are homothetic with homothetic center the Centroid.

The Half-Altitude Triangle and the Pedal Triangle of the Bevan Point are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Antipedal Triangle of the Incenter are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Antipedal Triangle of the de Longchamps Point are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Euler Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Reflection Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Anticevian Triangle of the Nagel Point of the Medial

Triangle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Anticevian Triangle of the de Longchamps Point of the Medial Triangle are perspective with perspector the Centroid.

The Half-Altitude Triangle and the Circumcevian Triangle of the Circumcenter of the Medial Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Anticevian Triangle of the Nine-Point Center of the Excentral Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Tangential Triangle of the Anticomplementary Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Anticevian Triangle of the de Longchamps Point of the Anticomplementary Triangle are perspective with perspector the Centroid.

The Half-Altitude Triangle and the Pedal Triangle of the de Longchamps Point of the Anticomplementary Triangle are homothetic with homothetic center the Centroid.

The Half-Altitude Triangle and the Extouch Triangle of the Inner Johnson-Yff Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Extouch Triangle of the Outer Johnson-Yff Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Anticomplementary Triangle of the First Brocard Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Anticomplementary Triangle of the Neuberg Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Anticomplementary Triangle of the Reflected Neuberg Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Tangential Triangle of the Johnson Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Anticevian Triangle of the Bevan Point of the Inner Johnson-Yff Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Anticevian Triangle of the Bevan Point of the Outer Johnson-Yff Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Johnson Triangle of the Fuhrmann Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Reflected Neuberg Triangle of the First Brocard Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Johnson Triangle of the Hexyl Triangle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Euler Triangle of the Johnson Triangle are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Fuhrmann Triangle of the Johnson Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the First Brocard Triangle of the Johnson Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Neuberg Triangle of the Johnson Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Reflected Neuberg Triangle of the Johnson Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Pedal Triangle of the de Longchamps Point of the Euler Triangle are homothetic with homothetic center the Nine-Point Center.

The Half-Altitude Triangle and the Pedal Triangle of the de Longchamps Point of the Hexyl Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Pedal Triangle of the Circumcenter of the Johnson Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Pedal Triangle of the de Longchamps Point of the Johnson Triangle are homothetic with homothetic center the Circumcenter.

The Half-Altitude Triangle and the Pedal Triangle of the Bevan Point of the Inner Johnson-Yff Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Pedal Triangle of the Bevan Point of the Outer Johnson-Yff Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Antipedal Triangle of the de Longchamps Point of the Euler Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Antipedal Triangle of the Orthocenter of the First Brocard Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Antipedal Triangle of the Orthocenter of the Neuberg Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Antipedal Triangle of the Orthocenter of the Reflected Neuberg Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Antipedal Triangle of the Circumcenter of the Johnson

Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Circumcevian Triangle of the Circumcenter of the Euler Triangle are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Circum-Orthic Triangle of the Euler Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Circum-Orthic Triangle of the Fuhrmann Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Circum-Orthic Triangle of the Mid-Arc Triangle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Triangle of the Symmedian Points of the Triangulation Triangles of the Centroid are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the First Feuerbach Points of the Triangulation Triangles of the Circumcenter are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the Kiepert Centers of the Triangulation Triangles of the Circumcenter are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the Centroids of the Triangulation Triangles of the Symmedian Point are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the de Longchamps Points of the Triangulation Triangles of the de Longchamps Point are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Stevanovic Triangle of the Centroids of the Triangulation triangles of the Incenter are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Stevanovic Triangle of the Orthocenters of the Triangulation triangles of the Incenter are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Stevanovic Triangle of the Prasolov Points of the Triangulation triangles of the Incenter are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Stevanovic Triangle of the Gergonne Points of the Triangulation triangles of the Center of the Outer Soddy Circle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Stevanovic Triangle of the Gergonne Points of the Triangulation triangles of the Center of the Inner Soddy Circle are perspective with perspector the Isogonal Conjugate of the Mittenpunkt.

The Half-Altitude Triangle and the Triangle of the Orthocenters of the Corner Triangles of

the Centroid are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the Circumcenters of the Corner Triangles of the Orthocenter are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the Orthocenters of the Corner Triangles of the de Longchamps Point are perspective with perspector the Circumcenter.

The Half-Altitude Triangle and the Triangle of the Symmedian Points of the Anticevian Corner Triangles of the Centroid are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the de Longchamps Points of the Anticevian Corner Triangles of the Centroid are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the Centroids of the Anticevian Corner Triangles of the Circumcenter are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the First Feuerbach Points of the Anticevian Corner Triangles of the Symmedian Point are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the Kiepert Centers of the Anticevian Corner Triangles of the Symmedian Point are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the reflections of the Orthocenter in the sides of the Medial Triangle are homothetic with homothetic center the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Center of the Taylor Circle in the sides of the Orthic Triangle are perspective with perspector the Center of the Taylor Circle.

The Half-Altitude Triangle and the Triangle of the reflections of the Circumcenter in the sides of the Excentral Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Orthocenter in the sides of the Anticomplementary Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Center of the Taylor Circle in the sides of the Tangential Triangle are perspective with perspector the Center of the Taylor Circle.

The Half-Altitude Triangle and the Triangle of the reflections of the Symmedian Point in the vertices of the Medial Triangle are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the reflections of the de Longchamps Point in the vertices of the Medial Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Orthocenter in the vertices of the Orthic Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Incenter in the vertices of the Extouch Triangle are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Circumcenter in the vertices of the Cevian Triangle of the de Longchamps Point are perspective with perspector the Circumcenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Symmedian Point in the vertices of the Anticevian Triangle of the Circumcenter are homothetic with homothetic center the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the reflections of the Orthocenter in the vertices of the Anticevian Triangle of the Orthocenter are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the de Longchamps Point in the vertices of the Tangential Triangle are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the Centroid in the vertices of the Anticevian Triangle of the de Longchamps Point are perspective with perspector the Centroid.

The Half-Altitude Triangle and the Triangle of the reflections of the Incenter in the vertices of the Anticevian Triangle of the Bevan Point are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Triangle of the reflections of the vertices of the Medial Triangle in the Nine-Point Center are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the vertices of the Medial Triangle in the Symmedian Point are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Triangle of the reflections of the vertices of the Extouch Triangle in the Incenter are perspective with perspector the Incenter.

The Half-Altitude Triangle and the Triangle of the reflections of the vertices of the Extouch Triangle in the Spieker Center are perspective with perspector the Orthocenter.

The Half-Altitude Triangle and the Triangle of the reflections of the vertices of the Cevian Triangle of the de Longchamps Point in the Circumcenter are perspective with perspector the Circumcenter.

The Half-Altitude Triangle and the Half-Anticevian Triangle of the Centroid are perspective with perspector the Symmedian Point.

The Half-Altitude Triangle and the Half-Anticevian Triangle of the Circumcenter are perspective with perspector the Nine-Point Center.

The Half-Altitude Triangle and the Half-Anticevian Triangle of the Nine-Point Center are perspective with perspector the Center of the Taylor Circle.

The Half-Altitude Triangle and the Triangle of the reflections of the de Longchamps Point in the sides of Triangle ABC are homothetic with homothetic center the Skordev 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 figure in this note is 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.

### References

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Dr.Deko Dekov, ddekov@dekovsoft.com.