

Outer Fermat Point

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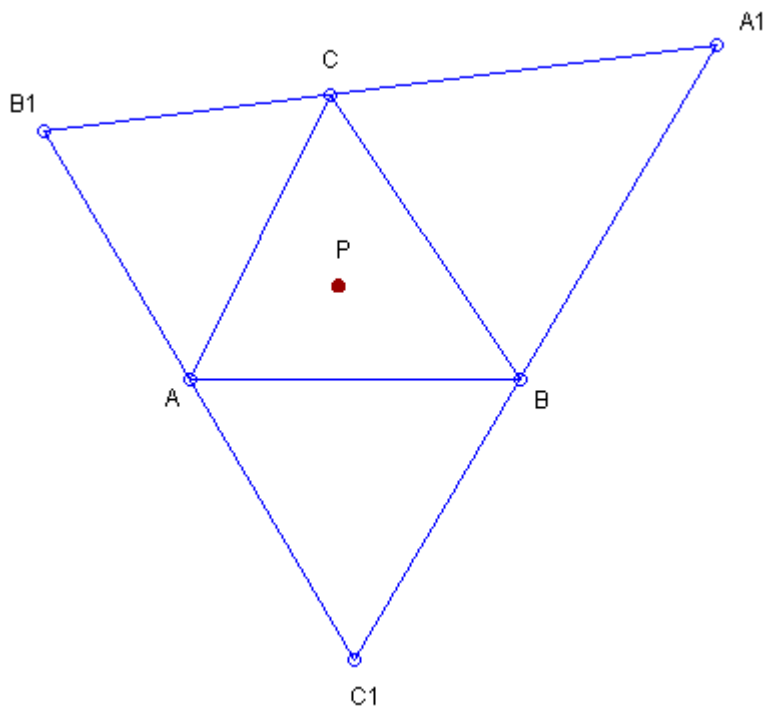
Abstract. By using the computer program "Machine for Questions and Answers", we find properties of the Outer Fermat Point.

Given a point, the Machine for Questions and Answers produces theorems related to properties of the point. The Machine for Questions and Answers produces theorems related to properties of the Outer Fermat Point:

Outer Fermat Point = Outer Fermat Point of the Cevian Triangle of the Outer Fermat Point.

Outer Fermat Point = Inner Fermat Point of the Anticevian Triangle of the Outer Fermat Point.

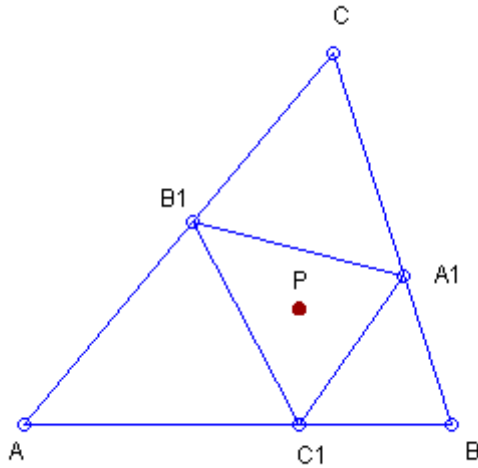
See the Figure:



$A_1B_1C_1$ - Anticevian Triangle of the Outer Fermat Point;
 P - Outer Fermat Point = Inner Fermat Point of triangle $A_1B_1C_1$.

Outer Fermat Point = First Isodynamic Point of the Pedal Triangle of the Outer Fermat Point.

See the Figure:



$A_1B_1C_1$ - Pedal Triangle of the Outer Fermat Point;

P - Outer Fermat Point = First Isodynamic Point of triangle $A_1B_1C_1$.

Outer Fermat Point = First Isodynamic Point of the Fourth Brocard Triangle.

Outer Fermat Point = Outer Fermat Point of the Outer Fermat Triangle.

Outer Fermat Point = Center of the Napoleon-Tucker Circle of the Fourth Brocard Triangle.

Outer Fermat Point = Reflection of the Inner Fermat Point in the Kiepert Center.

Outer Fermat Point = Inverse of the Inner Fermat Point in the Orthocentroidal Circle.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the Incenters of the Triangulation Triangles of the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the First Isodynamic Points of the Triangulation Triangles of the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Stevanovic Triangle of the Incenters of the Triangulation triangles of the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Stevanovic Triangle of the Outer Fermat Points of the Triangulation triangles of the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Stevanovic Triangle of the First Isodynamic Points of the Triangulation triangles of the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Stevanovic Triangle of the Inner

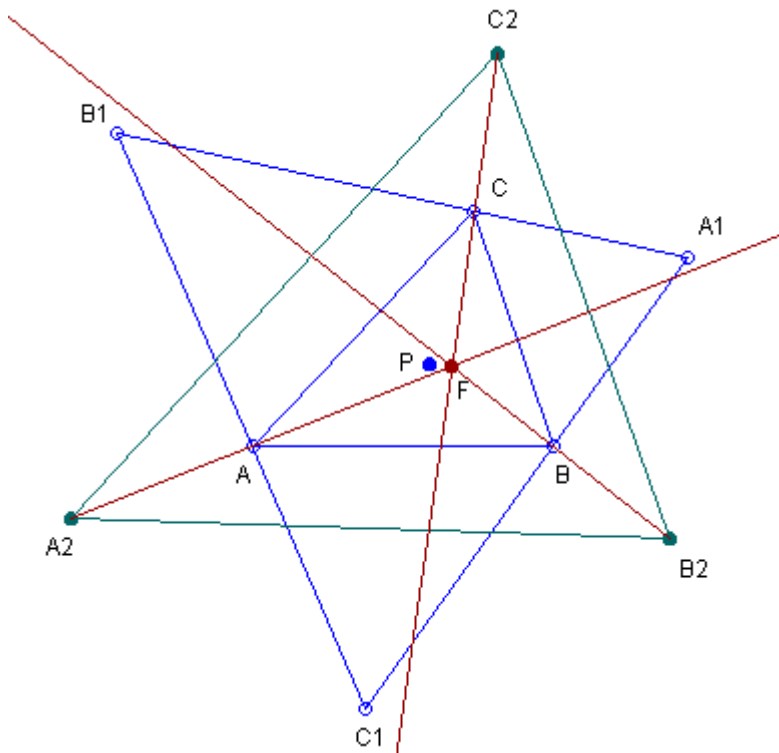
Fermat Points of the Triangulation triangles of the First Isodynamic Point.

Outer Fermat Point = Homothetic Center of Triangle ABC and the Triangle of the Outer Fermat Points of the Corner Triangles of the Centroid.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the First Isodynamic Points of the Corner Triangles of the Orthocenter.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the reflections of the First Isodynamic Point in the sides of the Excentral Triangle.

See the Figure:



P - First Isodynamic Point;

A₁B₁C₁ - Excentral Triangle;

A₂ - reflection of P in line B₁C₁;

B₂ - reflection of P in line C₁A₁;

C₂ - reflection of P in line A₁B₁;

A₂B₂C₂ - Triangle of the reflections of the First Isodynamic Point in the sides of the Excentral Triangle;

F - Outer Fermat Point = Perspector of triangles ABC and A₂B₂C₂.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Anticevian Triangle of the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the reflections of the vertices of the Cevian Triangle of the Outer Fermat Point in the Outer Fermat Point.

Outer Fermat Point = Perspector of Triangle ABC and the Triangle of the reflections of the vertices of the Anticevian Triangle of the Outer Fermat Point in the Outer Fermat Point.

Outer Fermat Point = Homothetic Center of the Incentral Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Incentral Triangle.

Outer Fermat Point = Homothetic Center of the Medial Triangle and the Triangle of the Centroids of the Triangulation Triangles of the Outer Fermat Point.

Outer Fermat Point = Perspector of the Medial Triangle and the Triangle of the Second Isodynamic Points of the Triangulation Triangles of the Outer Fermat Point.

Outer Fermat Point = Homothetic Center of the Medial Triangle and the Triangle of the Outer Fermat Points of the Anticevian Corner Triangles of the Centroid.

Outer Fermat Point = Homothetic Center of the Medial Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Medial Triangle.

Outer Fermat Point = Homothetic Center of the Orthic Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Orthic Triangle.

Outer Fermat Point = Homothetic Center of the Symmedial Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Symmedial Triangle.

Outer Fermat Point = Homothetic Center of the Intouch Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Intouch Triangle.

Outer Fermat Point = Homothetic Center of the Extouch Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Extouch Triangle.

Outer Fermat Point = Homothetic Center of the Excentral Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Excentral Triangle.

Outer Fermat Point = Homothetic Center of the Anticomplementary Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Anticomplementary Triangle.

Outer Fermat Point = Homothetic Center of the Tangential Triangle and the Triangle of the reflections of the Outer Fermat Point in the vertices of the Tangential Triangle.

Outer Fermat Point = Inner Johnson Perspector of the Triad of the Incircles of the Triangulation Triangles of the Outer Fermat Point.

Outer Fermat Point = Isogonal Conjugate of the First Isodynamic Point of the Second Brocard Triangle.

Outer Fermat Point = Isogonal Conjugate of the First Isodynamic Point of the Inner Lucas Triangle.

Outer Fermat Point = Anticomplement of the Midpoint between the Inner Fermat Point and

the Steiner Point.

Outer Fermat Point = Isogonal Conjugate of the Product of the Centroid and the First Isodynamic Point.

Outer Fermat Point = Isogonal Conjugate of the Internal Center of Similitude of the Circumcircle and the Fermat-Tucker Circle.

Outer Fermat Point = Isogonal Conjugate of the Inverse of the Second Isodynamic Point in the Circumcircle.

Outer Fermat Point = Isogonal Conjugate of the Inverse of the Second Isodynamic Point in the Brocard Circle.

Outer Fermat Point = Isogonal Conjugate of the Inverse of the Second Isodynamic Point in the Inner Lucas Circle.

Outer Fermat Point = Isogonal Conjugate of the Inverse of the Second Isodynamic Point in the Radical Circle of the Lucas Circles.

Outer Fermat Point = Complement of the Perspector of the Anticomplementary Triangle and the Inner Fermat Triangle.

Outer Fermat Point = Complement of the Perspector of the Antipedal Triangle of the Orthocenter and the Inner Fermat Triangle.

Outer Fermat Point = Isogonal Conjugate of the Perspector of the Cevian Triangle of the Outer Fermat Point and the Reflection Triangle.

Outer Fermat Point = Isogonal Conjugate of the Perspector of the Cevian Triangle of the Outer Fermat Point and the Inner Fermat Triangle.

The Outer Fermat Point lies on the Parry Circle of the Fourth Brocard Triangle.

The Outer Fermat Point lies on the Radical Circle of the Triad of the Orthocentroidal Circles of the Triangulation Triangles of the Tarry Point.

The Outer Fermat Point lies on the Line through the Centroid and the Second Isodynamic Point.

The Outer Fermat Point lies on the Line through the Circumcenter and the Outer Napoleon Point.

The Outer Fermat Point lies on the Line through the Inner Fermat Point and the Symmedian Point.

The Outer Fermat Point lies on the Line through the Inner Fermat Point and the Kiepert Center.

The Outer Fermat Point lies on the Line through the Inner Napoleon Point and the Nine-

Point Center.

The Outer Fermat Point lies on the Line through the Kiepert Center and the Symmedian 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

We use the definitions in accordance with [1 - 5] 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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