

Problem 6.

The Feuerbach Point lies on the Nine-Point Circle of the Outer Yff Triangle

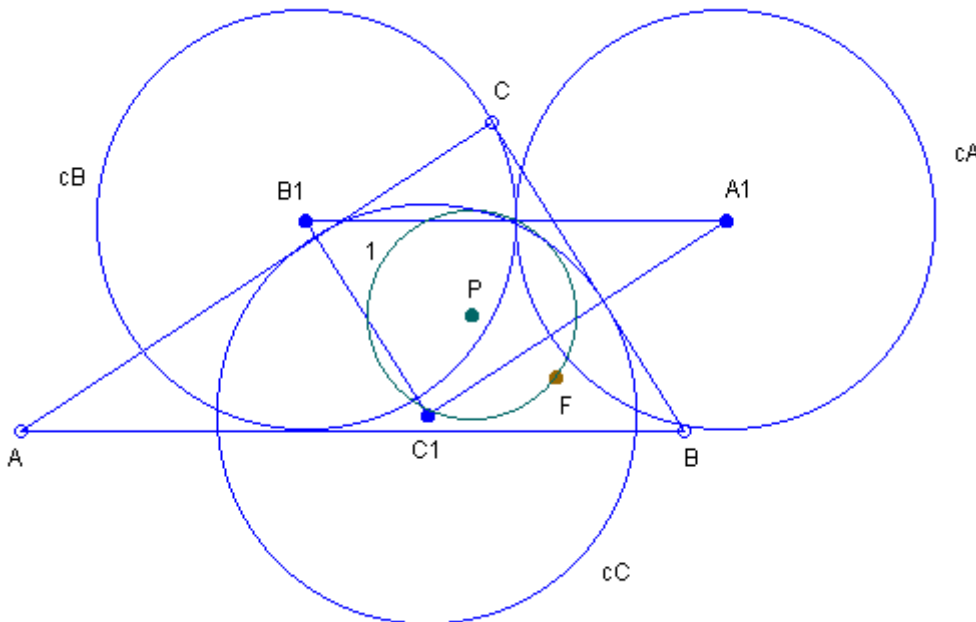
Publication Date: February 15, 2008

Prove the following computer-generated theorem:

THEOREM. The Feuerbach Point lies on the Nine-Point Circle of the Outer Yff Triangle.

The reader may find the definitions in [1-4].

The Yff circles of a triangle are the two triplets of congruent circle in which each circle is tangent to two sides of the triangle. The centers of each triplet of Yff circles form the corresponding Yff triangle. In this theorem we use the Outer Yff circles. See the Figure:



circles cA , cB , cC - Outer Yff circles;

A_1 , B_1 , C_1 - centers of the Outer Yff circles;

$A_1B_1C_1$ - Outer Yff Triangle;

P - Center of the Nine-Point Circle of the Outer Yff Triangle;

circle 1 - Nine-Point Circle of the Outer Yff Triangle;
The Feuerbach Point F lies on the Nine-Point Circle of the Outer Yff Triangle.

References

1. Quim Castellsaguer, The Triangles Web,
<http://www.xtec.es/~qcastell/ttw/ttweng/portada.html>
2. D. Dekov, Computer-Generated Encyclopedia of Euclidean Geometry, First Edition,
2006, available at the Web: <http://www.dekovsoft.com/>.
3. D. Dekov, papers in this journal, 2006, 2007, 2008.
4. Eric W. Weisstein, MathWorld - A Wolfram Web Resource.
<http://mathworld.wolfram.com/>