

### Problem 28

The Feuerbach Point is the Perspector of the Euler Triangle and the Triangle of the Orthocenters of the Corner Triangles of the Nagel Point

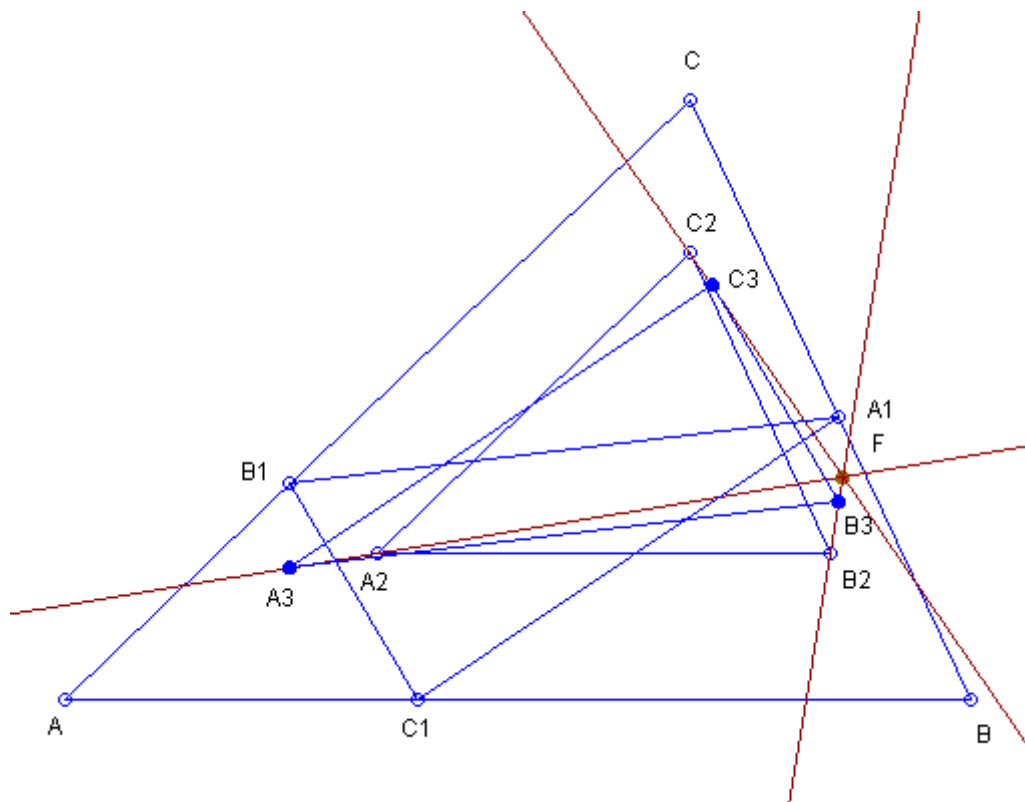
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Prove the following computer-generated theorem:

**THEOREM.** The Feuerbach Point is the Perspector of the Euler Triangle and the Triangle of the Orthocenters of the Corner Triangles of the Nagel Point.

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

See the Figure:



$A_1B_1C_1$  - Extouch Triangle = Cevian Triangle of the Nagel Point;  
 $A_2B_2C_2$  - Euler Triangle;

$A_3$  - Orthocenter of triangle  $AB_1C_1$ ;  
 $B_3$  - Orthocenter of triangle  $BC_1A_1$ ;  
 $C_3$  - Orthocenter of triangle  $CA_1B_1$ ;  
 $A_3B_3C_3$  - Triangle of the Orthocenters of the Corner Triangles of the Nagel Point;  
The lines  $A_2A_3$ ,  $B_2B_3$ , and  $C_2C_3$  concur at the Feuerbach Point F, that is, the Feuerbach Point is the Perspector of the Euler Triangle and the Triangle of the Orthocenters of the Corner Triangles of the Nagel Point.

## 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/e1/>.
3. D. Dekov, papers in this journal, 2006, 2007, 2008.
4. Eric W. Weisstein, MathWorld - A Wolfram Web Resource.  
<http://mathworld.wolfram.com/>