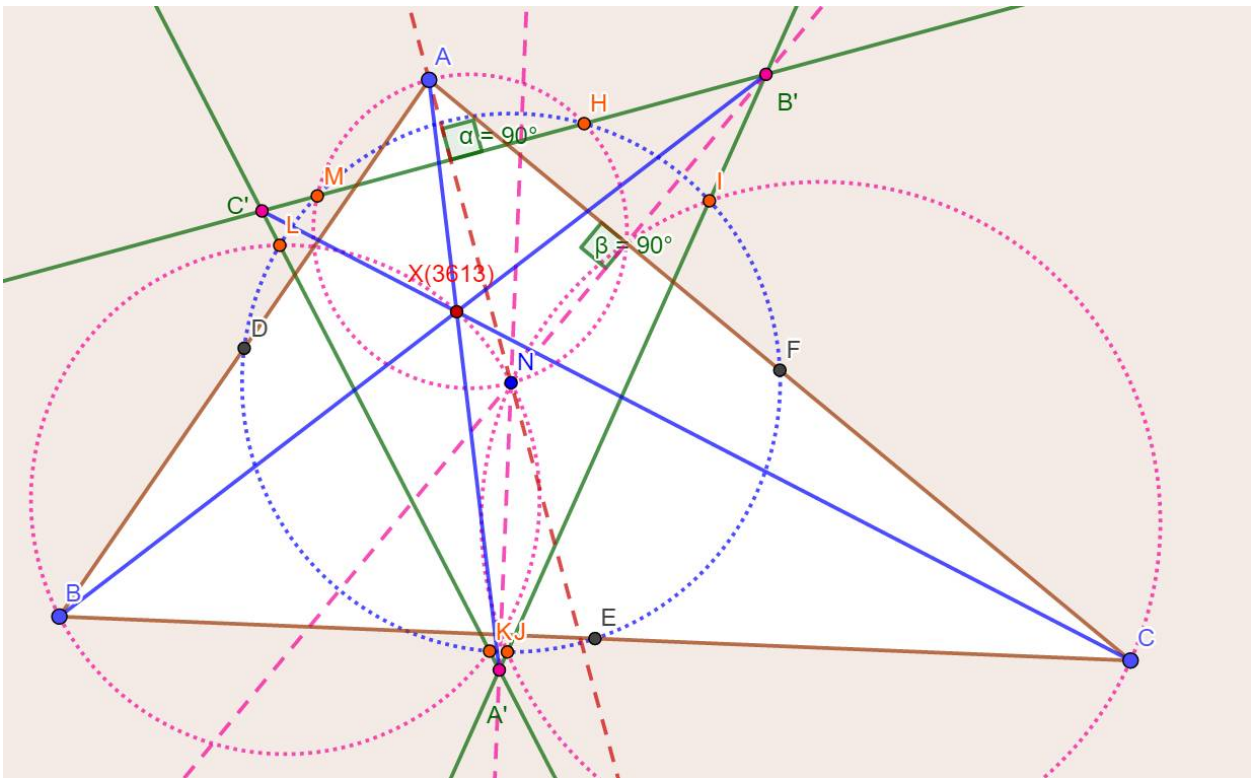


Some points related to X(3613):

- Let  $ABC$  be a triangle and  $N$  be the center of nine point circle NPC. Let  $L_1, L_2, L_3$  the radical axis of NPC and the three circles  $O_1, O_2, O_3$  by taking  $AN, BN$  and  $CN$  as diameter. The triangle  $A'B'C'$  formed by the lines  $L_1, L_2, L_3$  is perspective to  $ABC$ , and the perspector is **X(3613)**.



Barycentric equations of sides of the triangle  $A'B'C'$  are

$$2S_A x - c^2 y - b^2 z = 0,$$

$$c^2 x - 2S_B y + a^2 z = 0$$

and  $b^2x + a^2y - 2S_{AZ}=0$

And the coordinates of A', B', C'are

$$A' = (-(b^2 - c^2)^2 : a^2b^2 + b^2c^2 + c^2a^2 - c^4 : a^2b^2 + b^2c^2 + c^2a^2 - b^4)$$

$$B' = (a^2b^2 + b^2c^2 + c^2a^2 - c^4 : -(c^2 - a^2)^2 : a^2b^2 + b^2c^2 + c^2a^2 - a^4)$$

$$C' = (a^2b^2 + b^2c^2 + c^2a^2 - b^4 : a^2b^2 + b^2c^2 + c^2a^2 - a^4 : -(a^2 - b^2)^2)$$

So  $X(3613) = AA' \cap BB' \cap CC' =$

$$((a^2b^2 + b^2c^2 + c^2a^2 - b^4)(a^2b^2 + b^2c^2 + c^2a^2 - c^4) :$$

$$(a^2b^2 + b^2c^2 + c^2a^2 - c^4)(a^2b^2 + b^2c^2 + c^2a^2 - a^4) :$$

$$(a^2b^2 + b^2c^2 + c^2a^2 - a^4)(a^2b^2 + b^2c^2 + c^2a^2 - b^4))$$

2. The triangles ABC, A'B'C' are orthologic, and the orthologic center is N ( nine point center).