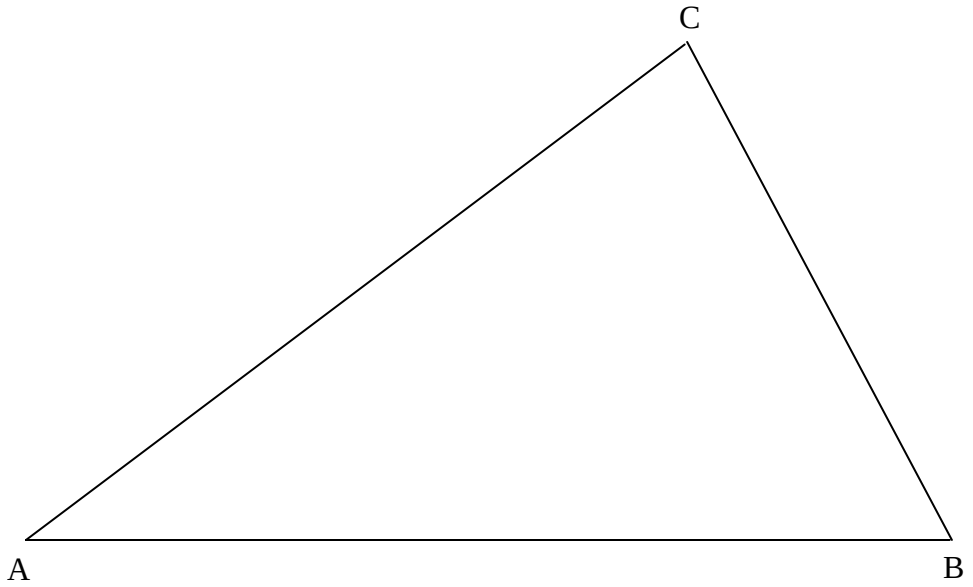
The Nine-Point Circle



1. Construct the perpendicular bisectors of the sides of ΔABC. Let X be the midpoint of $\overline{AB}$, Y the midpoint of $\overline{BC}$, and Z the midpoint of $\overline{AC}$. Let Q be the circumcenter of ΔABC.

2. Construct the three altitudes of ΔABC. Let K be the point where the altitude from C intersects $\overline{AB}$, let L be the point where the altitude from A intersects $\overline{BC}$, and let M be the point where the altitude from B intersects $\overline{AC}$. Let P be the orthocenter of ΔABC.

3. Construct the midpoints of $\overline{AP}$, $\overline{BP}$, and $\overline{CP}$. Let D be the midpoint of $\overline{AP}$, E be the midpoint of $\overline{BP}$, and F the midpoint of $\overline{CP}$.

4. Points X, K, E, L, Y, F, M, Z, and D should lie on a circle. To find the center of the circle, draw $\overline{PQ}$ and construct the midpoint of $\overline{PQ}$. Call the midpoint O.

5. With O as center and OX as radius, draw the *Nine-Point Circle* through the points listed in Step 4.