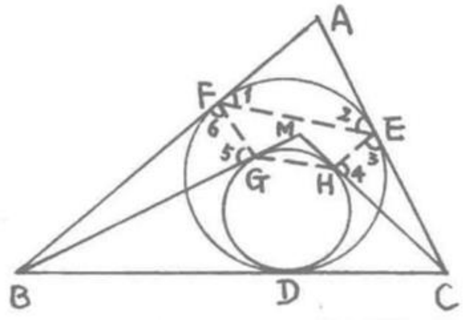

Example 182 : As shown in Figure 1 , let M *be* a point inside △ABC △, the inscribed circle of ABC and side BC , the tangent points of $C\,A$, AB *are* D, E, F *respectively*, the △inscribed circle of MBC and sides BC , CM , the tangent points of MB are D , H , G , and prove that the four points E , F , G , and H *share a circle.*

$$\left(\frac{\frac{F-E}{F-G}}{\frac{H-E}{G-H}}\right)^2 \frac{\frac{B-A}{F-E}}{\frac{E-F}{C-A}} \frac{\frac{B-M}{G-H}}{\frac{H-G}{C-M}} \frac{\frac{F-G}{A-B}}{\frac{M-B}{G-F}} \frac{\frac{H-E}{M-C}}{\frac{A-C}{E-H}} = 1,$$

Explanation: This question looks complicated, but you only need to convert $AF = AE$, $MG = MH$, $BF = BD = BG$, $CD = CE = CH$, and these line segment relationships into angle representations.