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Semicircles Erected on the sides of a Triangle

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1. Introduction

If we erected semicircles on the sides of a triangle, let three concurrent cevians intersect them, and then construct a circle through those three points, then those three points form a triangle which is in perspective with the original triangle. Tenable proofs are encouraged.

2. Results

Theorem 2.1. *Let A, B, and C be the vertices of a triangle.*
Let D be a point in the plane.
Let α be the semicircle external to AB with diameter AB.
Let β be the semicircle external to AC with diameter AC.
Let γ be the semicricle external to BC with diameter BC.
Let line CD intersect α at E.
Let line BD intersect β at F.
Let line AD intersect γ at G.
Let circle EFG intersect α, β, and γ respectively at points H, I, and J.
Then lines AJ, BI, and CH are concurrent.

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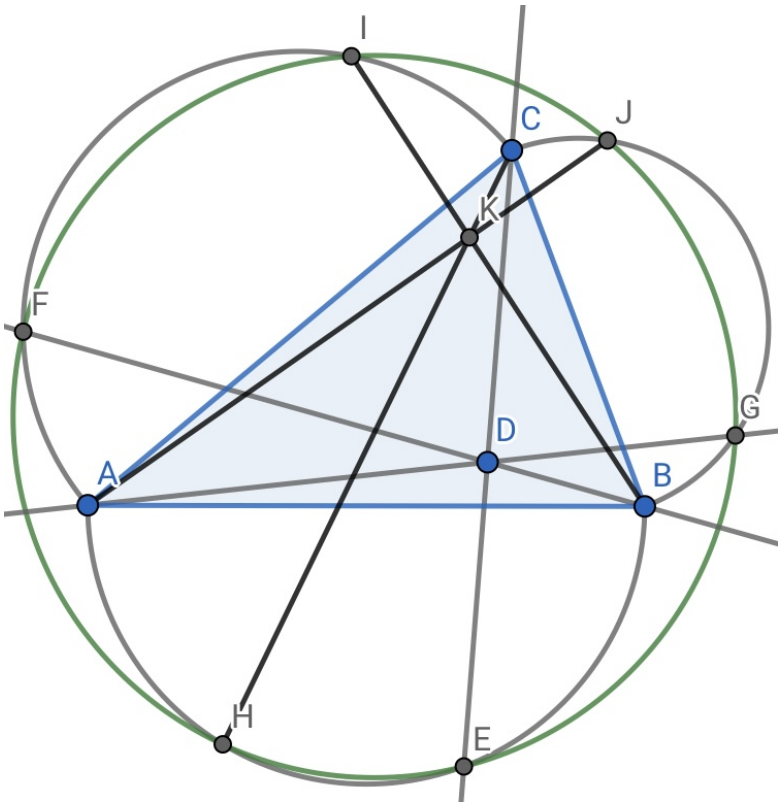

FIGURE 1. Illustration.