

Problem Proposal.

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PROBLEM:

Shown here is the epitrochoid

$$\begin{aligned}x(t) &= \cos 2t + A \cos 5t \\y(t) &= \sin 2t + A \sin 5t\end{aligned}$$

for $A = 0.9$. Show that if we replace $A = 0.9$ with

$$A = \frac{\sqrt{6}}{20} \sqrt{7\sqrt{21} + 27} \approx 0.941399 \dots$$

then the three internal loops of the epitrochoid will be mutually tangent.

