

**Discussion/Remarks:**

In case of a regular polygon (pentagon taken just for reference), the app will definitely be unable to find the required outputs. However, even if we analyse it theoretically just like the rest of the cases, the five sides will produce five different equations and hence there will be a lot of terms to with maximum degree being five, for a pentagon. Now, this is not only complex but also tedious and very lengthy in calculation. Also, since it is a regular polygon and all sides have the same dimension, it is very probable that just like the rectangular cross-section case, this will lead to a solution that will require higher mathematics to be solved or maybe unsolvable depending on the function it yields. Also, while calculating the torsion of such a complex problem, there will be a double integral with limits required for both the spatial coordinates. Since there are 5 different lines enclosing the figure, a universal relation for the limit won't exist. One would have to break the entire geometry into parts that can be analysed with relatively simpler and calculable limits.

Hence, **all polygonal cross-sections with more than four sides are fail cases for the app due to mathematical limitations in this complex problem.**

