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On the number of intersections of two polygons

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Abstract: We study the maximum possible number $f(k,l)$ of intersections of the boundaries of a simple k-gon with a simple l-gon in the plane for $k,l \geq 3$. To determine the number $f(k,l)$ is quite easy and known when k or l is even but still remains open for k and l both odd. We improve (for $k \leq l$) the easy upper bound $kl-l$ to $kl-\lceil k/6 \rceil - l$ and obtain exact bounds for $k=5$ ($f(5,l)=4l-2$) in this case.

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