MAC0331 - Lista 1

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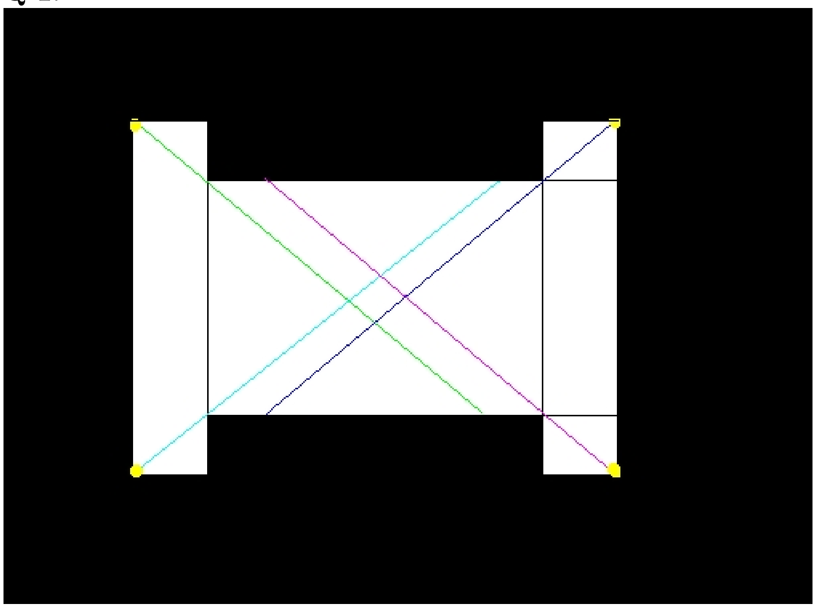
March 23, 2020

Q 1:



Q 12:
As seen in exercise 8, the dual of the triangulation of a polygon is a tree. Let T be a triangulation of the polygon P and G be its associated (dual) tree. Let G' be equal to G after a rotation. There exists anther triangulation T' of P that is equal to T except for a swap in the diagonal of a single quadrilateral formed by two adjacent triangles of T such that G' is its associated (dual) tree.

In the context of triangulation/tree dual association, a rotation in G is equivalent to a diagonal swap in T.

Q 13: Professor Maqui Esperto is incorrect. The original proof goes as follow: choose any u,v,w consecutive vertices of P. Draw the line segment $\overline{uw}$. If it does not cross any edge of the polygon, it is a diagonal. If it does, move the segment towards v. If t is the last vertex crossed, $\overline{vt}$ is a diagonal. The change does not work because there is no guarantee that u and the new t are not adjacent, let alone, that if they are not, that they form a diagonal.