

MAC0331 - Lista 6

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Q 4:

The Voronoy diagram of a regular polygon with n vertices consists of a vertex v in the circumcenter of the polygon and n rays that start in v , cross the midpoint of each edge, on towards infinity. The Delaunay graph is equal to the original regular polygon. **Q 6:**

If P consists of $n - 1$ co-linear points, with adequate distance, and a point v non co-linear, then the Delaunay diagram of P is such that $d(v) = n - 1$.

Proof by induction:

· Any two points in a line will be such that $d(v) = 2$. This is simple if you consider that v and p_i will split a semi-plane in the Voronoi diagram.

· Consider a collection C of k co-linear points such that the Voronoy diagram of $C + \{v\}$ is such that $d(v) = k$. · Take u the most distant point in C to v and z any other point. We can add w , more distant to v than u in the direction \vec{zu} in a way that we keep the initial property.