Further Graphics (pb355)

(a) Consider the set $C$ of 2D control points:
$C = \{ (0, 0), (0, 2), (2, 1), (2, -1), (-2, -1), (-2, 1) \}$

On 3 separate 2D graph plots, each ranging from $(-3, -3)$ to $(3, 3)$,

(i) Draw the Voronoi diagram of $C$ [2 marks]

(ii) Draw the Delaunay triangulation of $C$ [2 marks]

(iii) Draw the empty circles of the Voronoi points of $C$ [2 marks]

(iv) What is the first value in the equiangularity of $C$? [3 marks]

(v) What is the $(X, Y)$ position of the Voronoi point of $C$ with the most negative $Y$ coordinate? [3 marks]

(b) Using pseudocode, give an algorithm for finding the Delaunay triangulation of a set of 2D points $S$. [4 marks]

(c) Explain why the empty circles around the Voronoi points of a Voronoi diagram are, in fact, empty. [4 marks]