

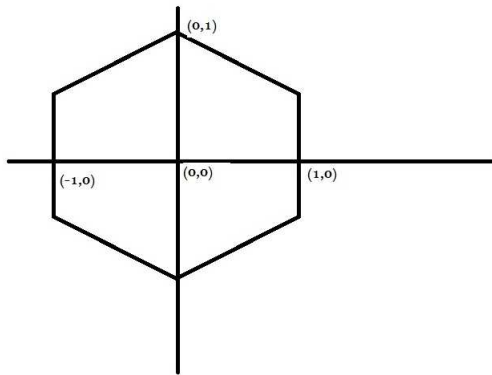
Master degree course on Approximation Theory and Applications,

Lab exercises

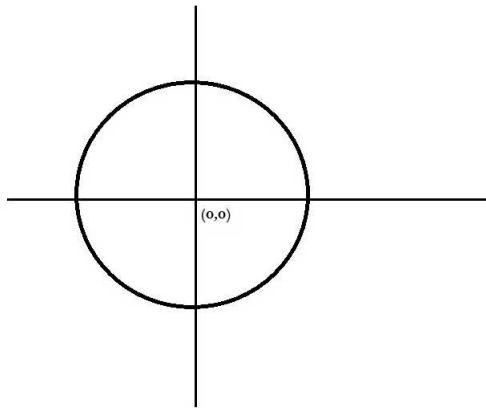
Prof. Stefano De Marchi

1. Write a script for extracting Approximate Fekete Points (AFP) and Discrete Leja Points (DLP) of order $n = 3, \dots, 10$, from a WAM of

(a) the exagon



(b) the unitary disk (using symmetric polar WAMs)



(c) the domain obtained by taking the upper part of the exagon and the lower part of the disk.

2. For all three domains, compute also the relative interpolation error (in the sup-norm), for interpolating the functions $f_1(x, y) = \cos(3(x + y))$ and $f_2(x, y) = \sqrt{[(x - 0.3)^2 + (y - 0.7)^2]}^3$

Hint: Refer to the functions in

<http://www.math.unipd.it/~marcov/mysoft/wam/>