END

NO

Return xbest and f(xbest)

YES

Is iters > total iterations?

or

time > allowed time ?

Is xref < xw ?

Replace xw with xref

Shrink polygon via bisection

NO

YES

xw = vertex in polygon with worst function value

Calculate centroid of remaining points in polygon.

xref = reflect xw across centroid

f(xw) = evaluate function at xw

iters = iters + 1

Set iters = 0

n = x\_dim + 1

Evaluate the black box function at each vertex of the polygon.

Set iters = n

Create a polygon with n vertices and centre it around chosen starting point x0.