***Problem 1:***

Use a=0.0 and b=0.1 as the initial guess for the bounds. This initial interval does not include the minimum, so it has be modified (shifted and elongated) with the approach based on golden section ratios.

After this modification, the interval that has the minimum is determined to be: [0.623607 ,1.73262]. Then apply the golden section search with the cubic polynomial approximation to the final interval points:

for

N=2

$x_{min}$ =1.01828517411976

$f_{min}$ =1.57019216538879

N=5

$x_{min}$ =1.0786545787942

$f_{min}$ =1.54525226487945

N=10

$x_{min}$ =1.09169112221101

$f_{min}$ =1.54431111915040

N=15

$x_{min}$ =1.09236241116291

$f_{min}$ =1.54430839603649

N=20

$x_{min}$ =1.09242295184011

$f_{min}$ =1.54430837339069

***Problem 2:***

$x_{min}$ = V = 231.439657 m/s

$f_{min}$= Drag_min = 220090.143460 N