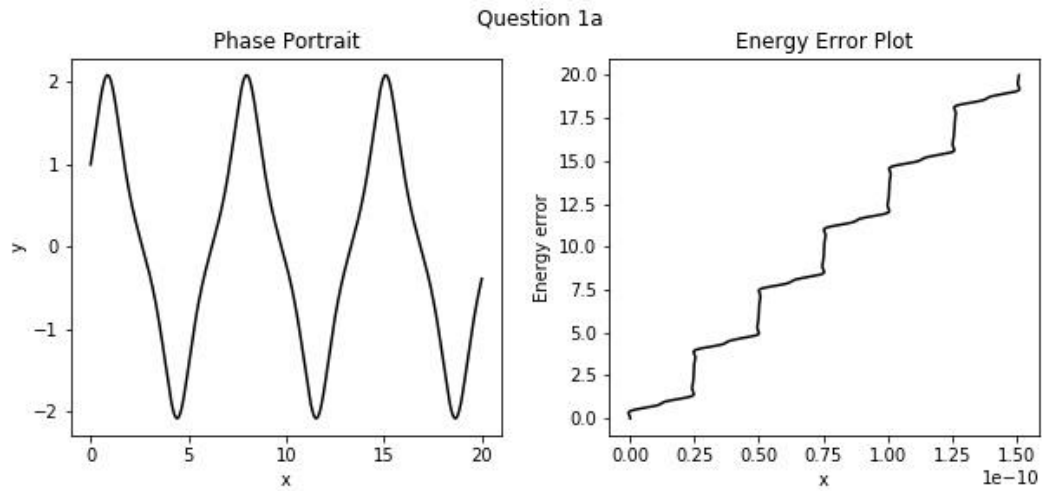
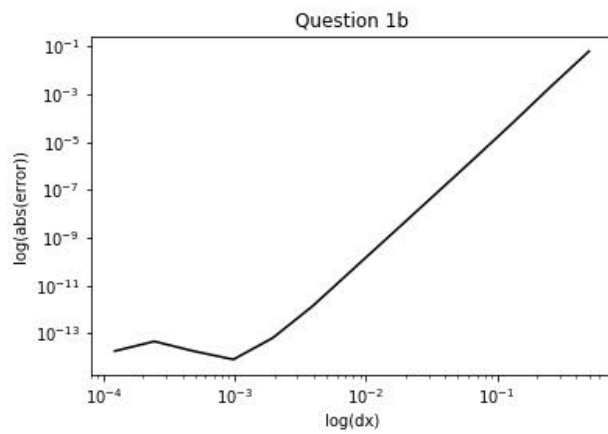


1)

A)



B)



The Order is 5

C)

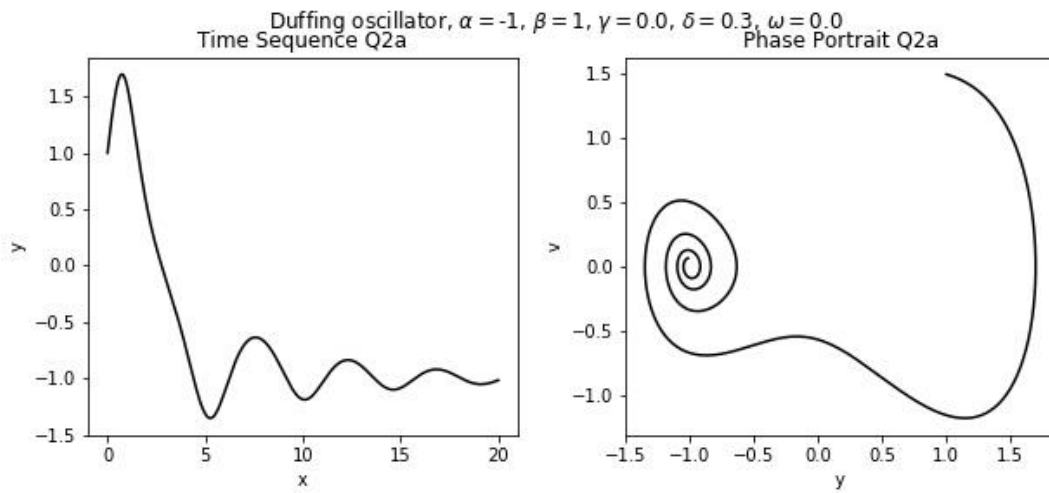
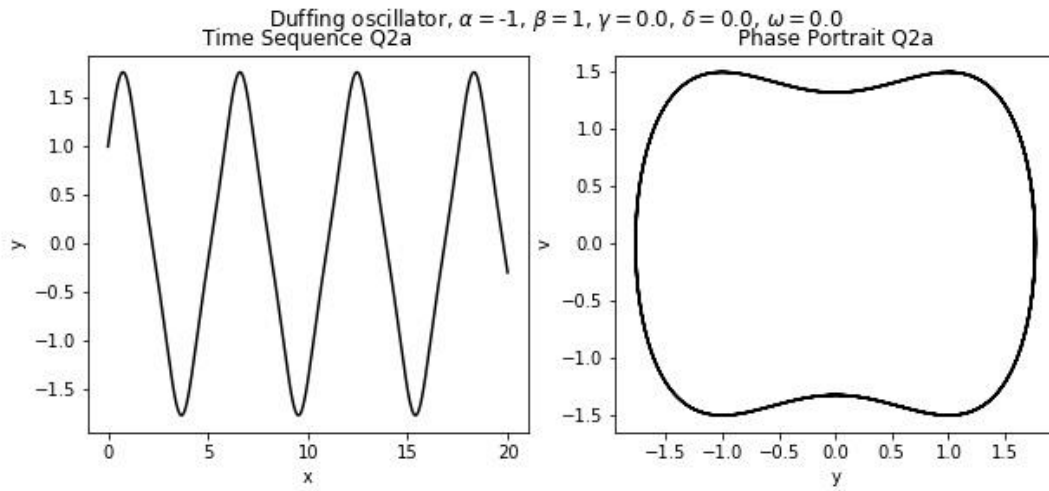
The Final Values are:

$x = 1.3530843112619095e-16$, $y = 0.9999999977106117$, $v = 1.4999999986752677$

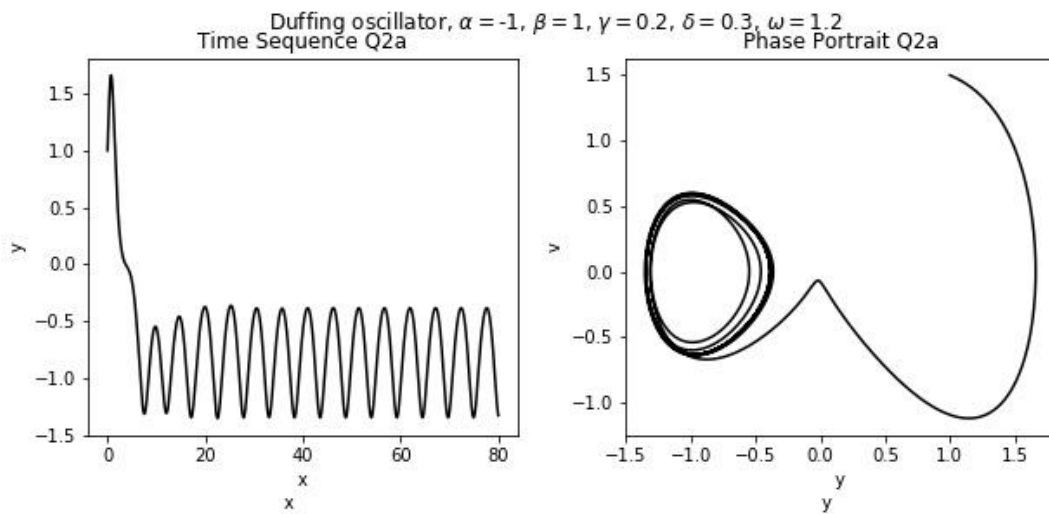
So **Yes** the scheme is reversible

2)

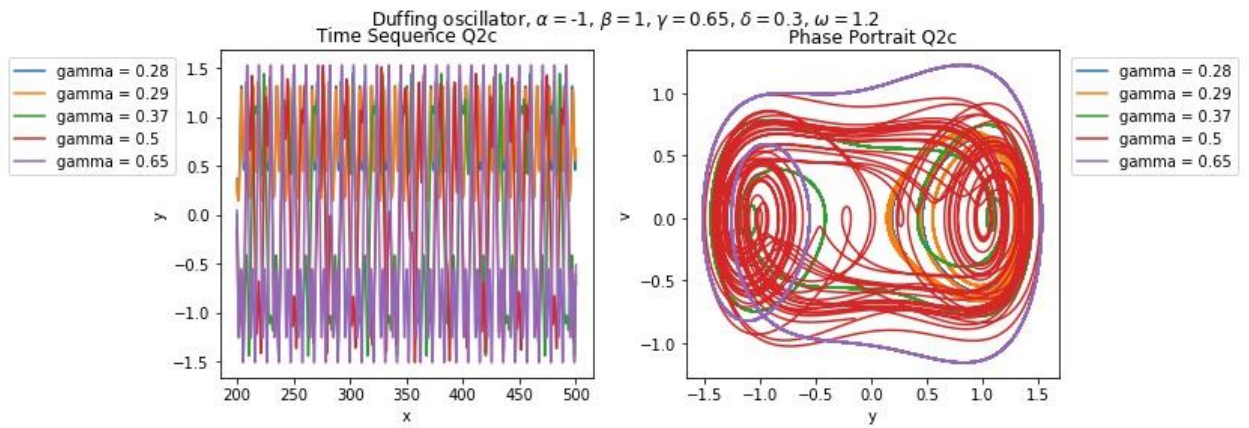
a)



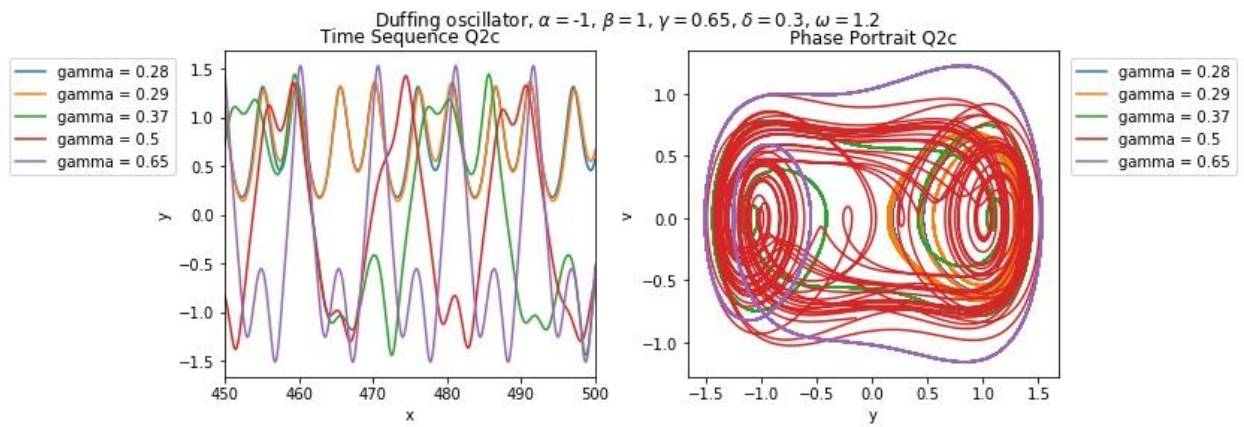
B)



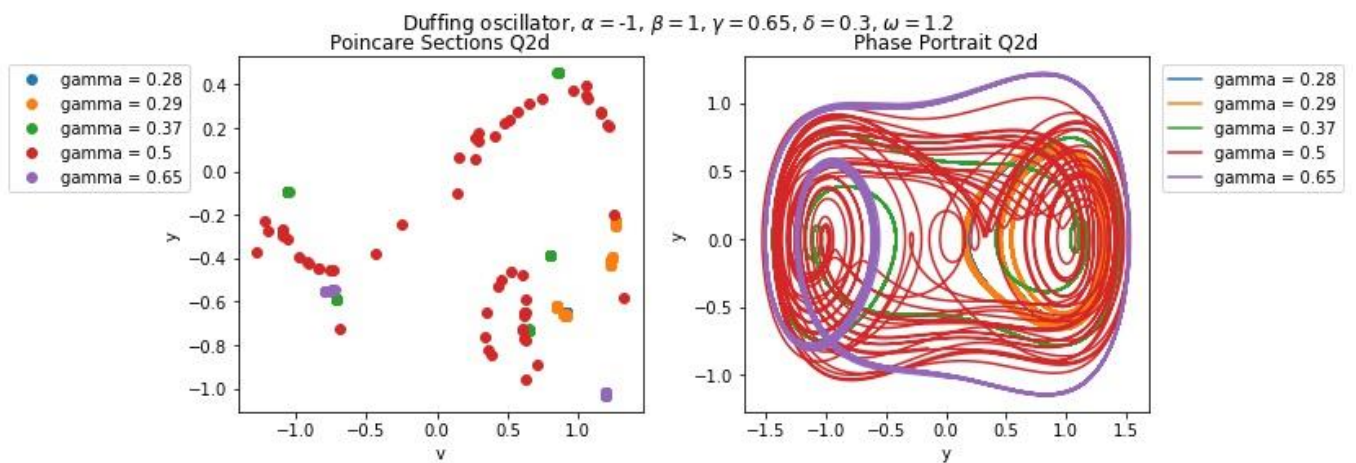
C)



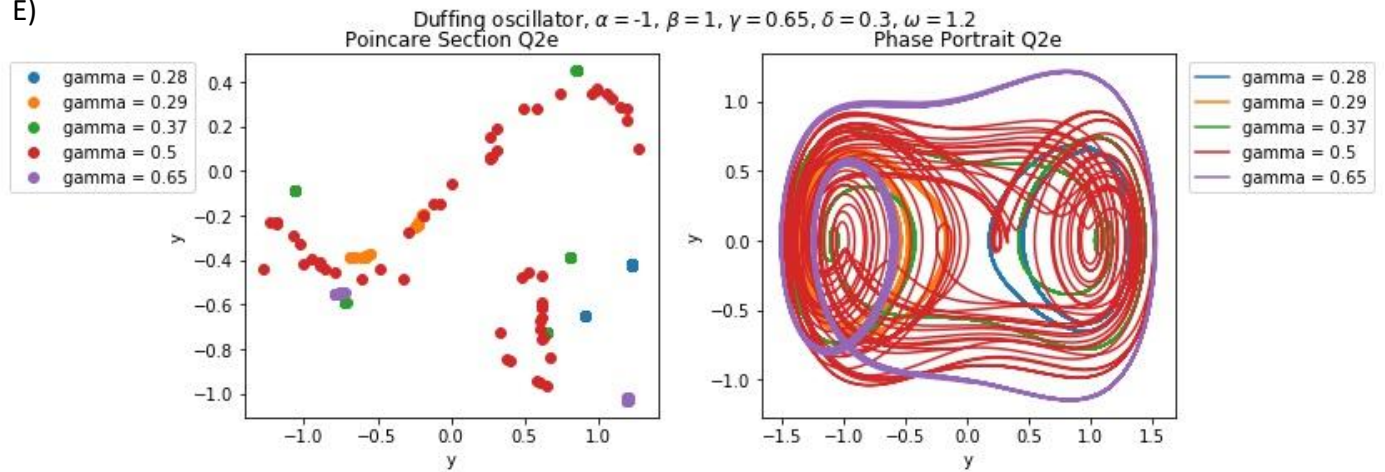
Or more zoomed in



D)



E)



For the RK method, the red points ($\gamma = .5$) are more spread out, and the orange points ($\gamma = .29$) are down near the lower right corner. However, in the MP method, the red points bunch up more and the orange points are located around the lower left corner. The Purple ($\gamma = .65$) and Green ($\gamma = .37$) points are nearly identical in each integrator.