**Background Information:**

The ODE Eqn(s) that will be solved is . We well know that the exact solution is of course . In this equation, we can also define independent variable *t* as if it is an equation (dependent variable). Hence, we have two equations,

Therefore, we have two ODEs

**RK\_ODE\_Solver:**

In real case, we will be asked to find a solution only for the ODE(s) in the form of without knowing its exact solution(s).

In order to use RK\_ODE\_Solver, we should add one complementary ODE from independent variable *t*,

Now we have two ODEs,

1st ODE: ()

2nd ODE:

These ODEs should be defined in a function name **ode(y)**

def ode(y, x=None):  
# f: dy/dx  
 f = [None]\*2  
 f[0] = 1.0  
 f[1] = exp(y[0])  
 f = [f[0], f[1]]  
 return f

y is the independent variables,

f is the dy/dt (ODEs)

xs = 0 # --> t = 0  
xf = 2 # --> t = 2  
dx = 0.01 # --> increment for t  
y = [0, 1] # ---> initial conditions

First RK\_ODE\_Solver() class object is called,

cons = RK\_ODE\_Solver()

Then, calc() method object is called for calculation.

cons.calc(y, ode, xs, xf, dx)