Método de Runge - Kutta Cuarto orden

Utilice el método de Runge Kutta para calcular la solución en 2 intervalos (i) de xa=0.1 a xb=0.3 para la ecuación diferencial:

$dy/dx=x^2+y^2$ con
$y(0)=1$

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k1=f(xi,yi)
k2=f(xi+(h/2),yi+(hk1/2))
k3= f(xi+(h/2),yi+(hk2/2))
k4= f(xi+h,yi+hk3)
yi+1(xi+1)=yi+[(h/6)(k1+2k2+2k3+k4)]
h = (xb-xa)/i

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h=(0.3-0.1)/2=0.1
x0=0, x1=0.1, x2=0.2, x3=0.3

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i=0, x0=0, y0=1
k1=f(0,1)=1
k2=f(0+(0.1/2),1+((0.1*1)/2))=f(0.05,1.05)=1.105
k3=f(0+(0.1/2),1+((0.1*1.105)/2))=f(0.05,1.05525)=1.116052563
k4=f(0+0.1,1+(0.1*1.116052563)=f(0.1,1.111605256)=1.245666246
y1(x1)=1+[(0.1/6)(1+2*1.105+2*1.116052563+1.245666246)]
y1(0.1)=1.111462856

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i=1, x1=0.1
k1=f(0.1,y1)=1.24534968
k2=f(0.1+(0.1/2),y1+((0.1*k1)/2))=f(0.15,1.17373034)=1.400142911
k3=f(0.1+(0.1/2),y1+((0.1*k2)/2))=f(0.15,1.181470002)=1.418371365
k4=f(0.1+0.1,y1+(0.1*k3)=f(0.2,1.253299992)=1.610760871
y2(x2)=y1+[(0.1/6)(k1+2*k2+2*k3+k4)]
y2(0.2)=1.253015174

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i=2, x2=0.2
k1=f(0.2,y2)=1.610047026
k2=f(0.2+(0.1/2),y2+((0.1*k1)/2))=f(0.25,1.333517525)=1.84076899
k3=f(0.2+(0.1/2),y2+((0.1*k2)/2))=f(0.25,1.345053624)=1.87166925
k4=f(0.2+0.1,y2+(0.1*k3)=f(0.3,1.440182099)=2.164124478
y3(x3)=y2+[(0.1/6)(k1+2*k2+2*k3+k4)]
y3(0.3)=1.439665974