#RK Method 4th order

def f(x,y):

z=y-x

return z

x0=float(input("Enter the initial value of x = "))

y0=float(input("Enter the initial value of y = "))

h=float(input("Enter the step size h = "))

n=int(input("Enter the number of iterations n = "))

count=1

while (count<=n):

k1=f(x0,y0)

k2=f(x0+h/2,y0+(h\*k1/2))

k3=f(x0+h/2,y0+(h\*k2/2))

k4=f(x0+h,y0+h\*k3)

y1=y0+(h/6)\*(k1+2\*k2+2\*k3+k4)

print("The value of k1 =",k1,"k2=",k2,"k3= ",k3,"k4=",k4)

print("The new value of y is",y1)

x0=x0+h

y0=y1

count=count+1