

```
// Write a program for Runge Kutta method //
```

```
#include<stdio.h>
```

```
#include<conio.h>
```

```
double f(double x, double y)
```

```
{
```

```
return x+y*y;
```

```
}
```

```
void main()
```

```
{
```

```
double x0,y0,h,xn,x,y,k1,k2,k3,k4,k;
```

```
clrscr();
```

```
printf("enter the values of x0,y0,h,xn,\n");
```

```
scanf("%lf%lf%lf%lf",&x0,&y0,&h,&xn);
```

```
x=x0;
```

```
y=y0;
```

```
while(x<=xn)
```

```
{
```

```
if(x==xn)
```

```
break;
```

```
k1=h*f(x,y);
```

```
k2=h*f(x+h/3,y+k1/2);
```

```
k3=h*f(x+h/2,y+k2/2);
```

```
k4=h*f(x+h,y+k3);
```

```
k=(k1+(k2+k3)*2+k4)/6;
```

```
x=x+h;
```

```
y=y+k;
```

```
printf("when x=%8.4lf y=%8.4lf\n",x,y);
```

```
}
```

}

Output :-

Enter the values of x0,y0,h,xn

0.0 1.0 0.1 0.2

When x = 0.1000 y =1.1165

When x =0.200 y = 1.2763