

You can run .pas file in Turbo Pascal 7.0  
Integral is calculated by the Simpson's rule.

Here is the program:

```
program NumIntegration;
uses Crt;
const a=0.0; b=10.0;

function U (x : real) : real;
begin
    U:= x * x;
end;

function rectang(a,b, delta : real) : real;
var h,l1n,l2n,teta,Delta2n,xi : real; j,n : word;
begin
    teta:=1/3;
    delta2n:=delta + 1;
    n:=7;
    l1n:=0;
    l2n:=0;
    repeat
        l1n := l2n;
        l2n := 0;
        H:=(b-a)/(2*n);
        {Calculate l2}
        for j:=1 to 2*n-1 do
            begin
                xi:=a+j*H;
                l2n := l2n + U(xi);
            end;
        l2n:= l2n + (U(a) + U(b)) / 2;
        l2n:=l2n*H;
        Delta2n:=teta*abs(l1n-l2n);
        n:=2*n; { double the number of subintervals}
```

```
    until Delta2n <= delta;
rectang:=l2n;
end;{rectang}
var S : real; Delta : real;
BEGIN
    Delta:=0.001; {accuracy}
    clrscr;
    S:=rectang(a,b,delta);
    writeLN('S=',S:7:3);
    readkey;
END.
```