

Classwork

Aim : Evaluate $\frac{1}{\sqrt{2\pi\sigma^2}} e^{-((x-2)^2)/(2\sigma^2)} (x+3) dx$, for $\sigma=1, 0.1, 0.01$, and show it tends to 5.

We have used the 1/3rd Simpson Method

SciLab Code

```
//Simpson's (1/3)rd Rule
sig = 0.01
deff('y=f(x)', 'y=1/sqrt(2*%pi*sig^2)*exp(-((x-2)^2)/(2*sig^2))*(x+3)')
a= 0
b= 4
//n=input("Enter number of sum intervals: ")
n=(b-a)/h
h = 0.01
add1=0
add2=0
add3=0
for i=0:n
    x=a+i*h
    y=f(x)
    disp([x y])
    if (i==0)|(i==n) then
        add1=add1+y
    else if (modulo(i,2)==0) then
        add2=add2+y
    else
        add3=add3+y
    end
end
end
I=(h/3)*(add1+2*add2+4*add3)
disp(I, "Integration by Simpsons (1/3)rd Rule is:")
```

Output

At Sigma = 0.01

5.986 0.

5.987 0.

5.988 0.

5.989 0.

5.99 0.

5.991 0.

5.992 0.

5.993 0.

5.994 0.

5.995 0.

5.996 0.

5.997 0.

5.998 0.

5.999 0.

6. 0.

5.0000000

"Integration by Simpsons (1/3)rd Rule is:"