

Q2

November 21, 2021

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[7]: %run lib.ipynb
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[8]: from math import exp
from math import sqrt
L = 4
def f(x):
    return exp(-(x**2)/(L**2))
k = 1
d = 1.5
def g(x):
    return f(x)/sqrt((x**2) + (d**2))
```

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[9]: l = 1
x1 = -l
x2 = L-l
eps = 10**(-6)

N = 12

SM = (integral_simpson(g, x1, x2, N))

print("Using simpson method with N = " + str(N) + " gives the integral value to be " + str(SM))
print("The potential at a height 1.5m above the point 1m away from x = 0 end of the wire is " + str(SM))
```

Using simpson method with N = 12 gives the integral value to be
1.8728664575240428

The potential at a height 1.5m above the point 1m away from x = 0 end of the
wire is 1.8728664575240428