In [10]:
```
import pandas as pd
data = pd.read_csv("G:/TE 6 sem/dsdba/iris.csv")
```

In [11]:
```
data.head()
```

Out[11]:

	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	Class	Unnamed: 5	Unnamed: 6	alpha	obj	Unnamed: 9	Unnamed: 10
0	7.0	3.2	4.7	1.4	Iris-versicolor	NaN	0.0	0.0	0.0	0	1
1	6.4	3.2	4.5	1.5	Iris-versicolor	NaN	0.0	NaN	NaN	0	1
2	6.9	3.1	4.9	1.5	Iris-versicolor	NaN	0.0	NaN	NaN	0	1
3	5.5	2.3	4.0	1.3	Iris-versicolor	NaN	0.0	NaN	NaN	0	1
4	6.5	2.8	4.6	1.5	Iris-versicolor	NaN	NaN	NaN	NaN	0	1

In [12]:
```
data.tail()
```

Out[12]:

	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	Class	Unnamed: 5	Unnamed: 6	alpha	obj	Unnamed: 9	Unnamed: 10
95	4.8	3.0	1.4	0.3	Iris-setosa	NaN	NaN	NaN	NaN	0	1
96	5.1	3.8	1.6	0.2	Iris-setosa	NaN	NaN	NaN	NaN	0	1
97	4.6	3.2	1.4	0.2	Iris-setosa	NaN	NaN	NaN	NaN	0	1
98	5.3	3.7	1.5	0.2	Iris-setosa	NaN	NaN	NaN	NaN	0	1
99	5.0	3.3	1.4	0.2	Iris-setosa	NaN	NaN	NaN	NaN	0	1

In [13]:
```
data.shape
```

Out[13]: (100, 11)

In [14]:
```
data.isnull()
```

Out[14]:

	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	Class	Unnamed: 5	Unnamed: 6	alpha	obj	Unnamed: 9	Unnamed: 10
0	False	False	False	False	False	True	False	False	False	False	False
1	False	False	False	False	False	True	False	True	True	False	False
2	False	False	False	False	False	True	False	True	True	False	False
3	False	False	False	False	False	True	False	True	True	False	False
4	False	False	False	False	False	True	True	True	True	False	False

In [15]:
```
data.isna()
```

Out[15]:

	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	Class	Unnamed: 5	Unnamed: 6	alpha	obj	Unnamed: 9	Unnamed: 10
0	False	False	False	False	False	True	False	False	False	False	False
1	False	False	False	False	False	True	False	True	True	False	False
2	False	False	False	False	False	True	False	True	True	False	False
3	False	False	False	False	False	True	False	True	True	False	False
4	False	False	False	False	False	True	True	True	True	False	False
5	False	False	False	False	False	True	True	True	True	False	False

In [16]:
```
data.isna().sum()
```

Out[16]:
```
Sepal Length (cm)      0
Sepal Width (cm)       0
Petal Length (cm)      0
Petal Width (cm)       0
Class                  0
Unnamed: 5           100
Unnamed: 6            96
alpha                 99
obj                   99
Unnamed: 9             0
Unnamed: 10            0
dtype: int64
```

In [17]:
```
import scipy.integrate as integrate
import scipy.special as special
```

In [18]:
```
result = integrate.quad(lambda x: special.jv(2.5,x), 0, 4.5)
result
```

Out[18]:
```
(1.1178179380783244, 7.866317216380707e-09)
```

In [19]:
```
from numpy import sqrt, sin, cos, pi
I = sqrt(2/pi)*(18.0/27*sqrt(2)*cos(4.5) - 4.0/27*sqrt(2)*sin(4.5) +sqrt(2*pi) * special.fresnel(3/sqrt
```

In [21]:
```
from scipy.integrate import quad
def integrand(x, a, b):
 return a*x**2 + b
```

In [22]:
```
a = 2
b = 1
I = quad(integrand, 0, 1, args=(a,b))
I
```

Out[22]:
```
(1.6666666666666667, 1.8503717077085944e-14)
```