```
% Name-Amlan Nayak
% Reg. no-19BCD7143
% Date-30/8/19
clc
clear all
syms x y z
z1= 4 - x^2 - y^2;
z2= x^2 + y^2;
d= 1 + x;
ry=solve(z1-z2,y);
ylim1=ry(1);
ylim2=ry(2);
rx=solve(ry(1),x);
xlim1=rx(1);
xlim2=rx(2);
volume=int(int(int(1,z,z2,z1),y,ylim2,ylim1),x,xlim1,xlim2)
vpa(volume)
M=int(int(int(d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)
Myz=int(int(int(x*d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)
Mxz=int(int(int(y*d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)
Mxy=int(int(int(z*d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)

C=[Myz/M , Mxz/M , Mxy/M]

Ix=int(int(int((y^2+z^2)*d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)
Iy=int(int(int((x^2+z^2)*d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)
Iz=int(int(int((x^2+y^2)*d,z,z1,z2),y,ylim2,ylim1),x,xlim2,xlim1)

viewSolid(z,z2,z1,y,ylim2,ylim1,x,-2^(1/2),2^(1/2))
rotate3d on
```

```
volume =

4*pi


ans =

12.566370614359172953850573533118


M =

4*pi


Myz =

(4*pi)/3


Mxz =

0


Mxy =

8*pi


C =

[ 1/3, 0, 2]


Ix =

20*pi


Iy =

20*pi


Iz =

(8*pi)/3

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