New Function:

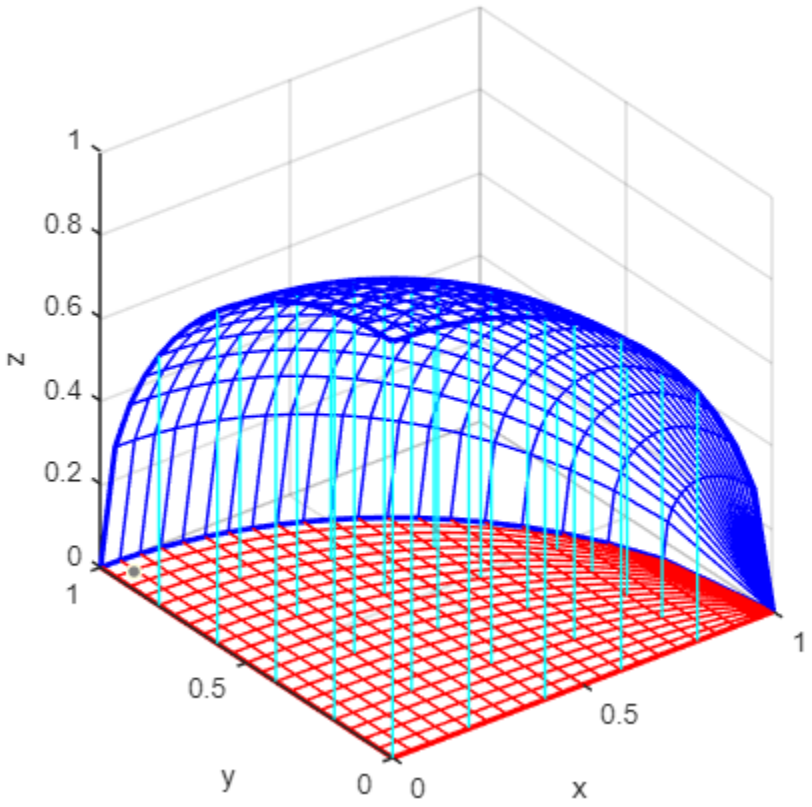
viewSolid(zvar, F, G, yvar, f, g, xvar, a, b)

```
% Exp.11 – Evaluating Volume under Surfaces... by Jayagopal R
%Jayagopal R9:06 AM
% Exp.11 – Evaluating Volume under Surfaces
clc
clear all
syms x y z
vol = 8*int(int(sqrt(1-x^2-y^2),y,0,sqrt(1-x^2)),x,0,1)
viewSolid(z,0+0*x*y,sqrt(1-x^2-y^2),y,0+0*x,sqrt(1-x^2),x,0,1);
axis equal;
grid on;



vol = int(int(x^2+y^2, x,y/2,sqrt(y)), y, 0, 4)
viewSolidone(z,0+0*x*y,x^2+y^2,x,y/2,sqrt(y),y,0,4);

Q1
vol = int(int(x^3+(x*y^2), y,0,x^2),y, 0, 5)
viewSolid(z,0+0*x*y, x^3+(x*y^2), y,0+0*x^2,x^2, x, 0, 5);

Q2
vol = int(int(1, y,0,sqrt(4-x^2)), x, 0, 2)
viewSolid(z,0+0*x*y,1, y,0+0*x^2,sqrt(4-x^2), x, 0,
2);

Q3
vol = int(int(1, y,1,sqrt(4-x^2)), x, 0, 2)
viewSolidone(z,0+0*x*y,x*(x+y) ,y,1,2,y,0,1);

Q4
vol = int(int(x, x, 0, sqrt(4-y^2)), y, -2, 2)
viewSolidone(z,0+0*x*y,x,x,0*y,sqrt(4-y^2),y,-2,2);

Q5
vol = int(int(x*y, y, x^2, 2-x), x, 0, 1)
viewSolid(z,0+0*x*y,x*y,y,x^2,2-x,x,0,1);
```

OUTPUT WINDOW:

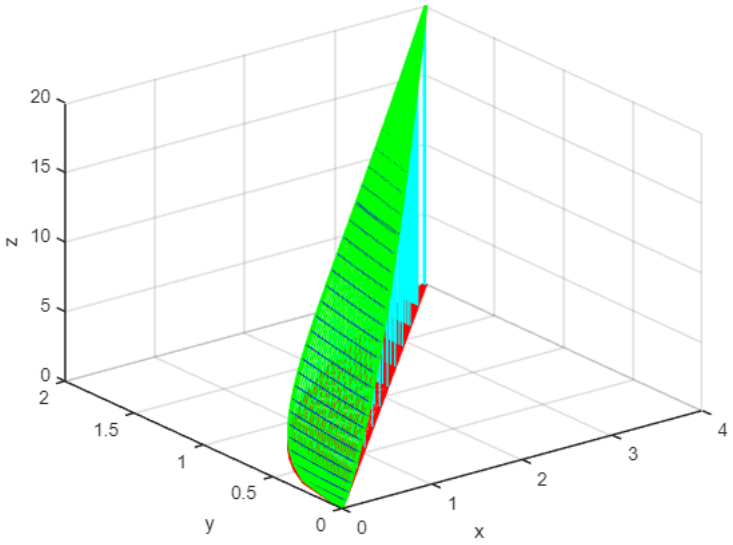
Q1.

```
vol =

(4*pi)/3
```



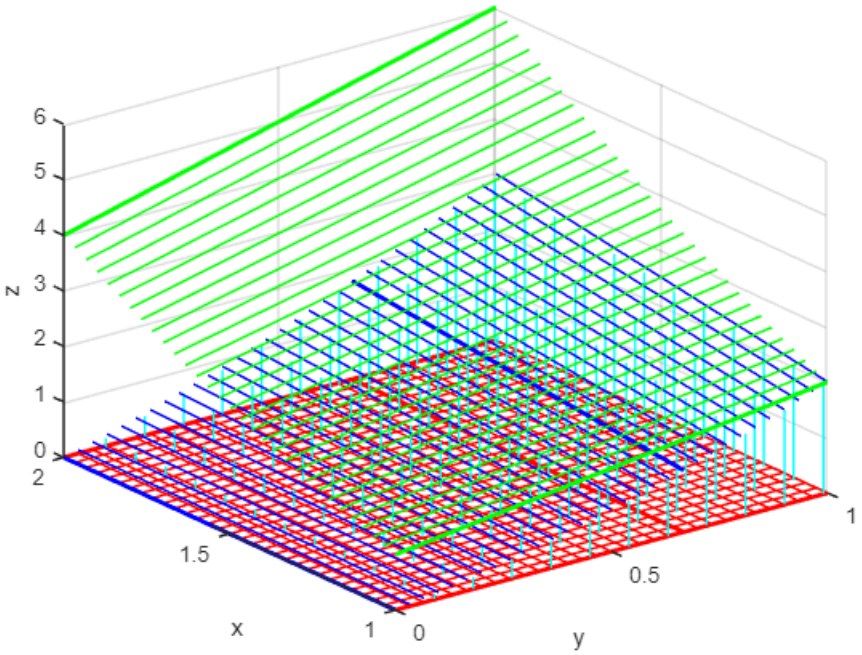
Q2

```
vol =

216/35
```

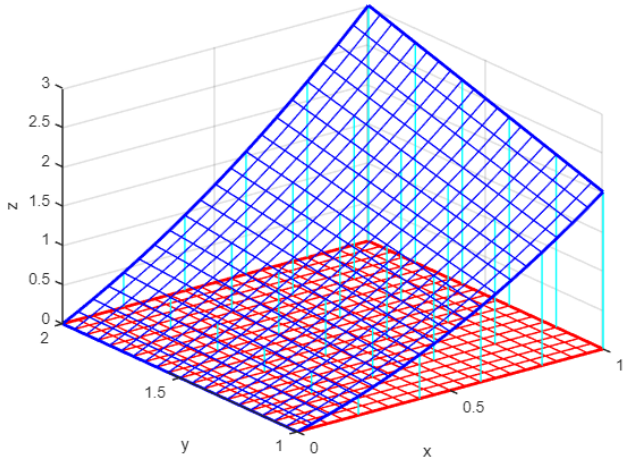


① $\int_0^1 \int_1^2 x(x+y)\,dy\,dx$

vol = 13/12



② $\int_0^5 \int_0^{x^2} (x^3 + xy^2)\,dx\,dy$

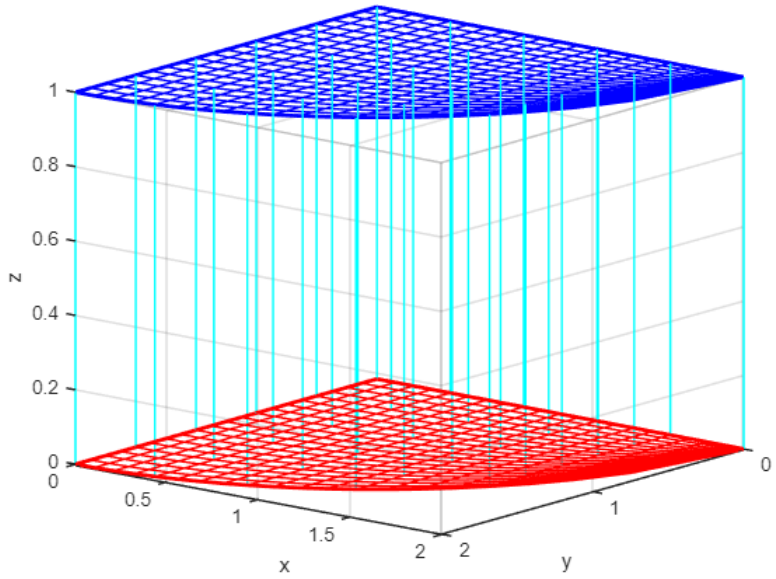


vol =

453125/24

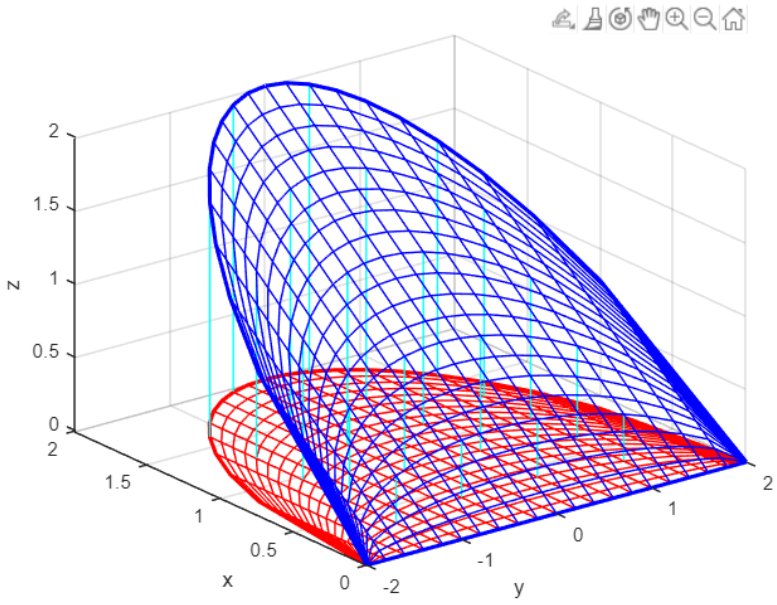
③ $\int_0^2 \int_0^{\sqrt{4-x^2}} dx\, dy$

```
vol =

    pi
```



④ $\int_{-2}^{2} \int_0^{\sqrt{4-y^2}} x\, dx\, dy$

```
Vol = 16/3
```



(5) $\int_{0}^{1} \int_{x^2}^{2-x} xy \, dy \, dx$

vol =

3/8