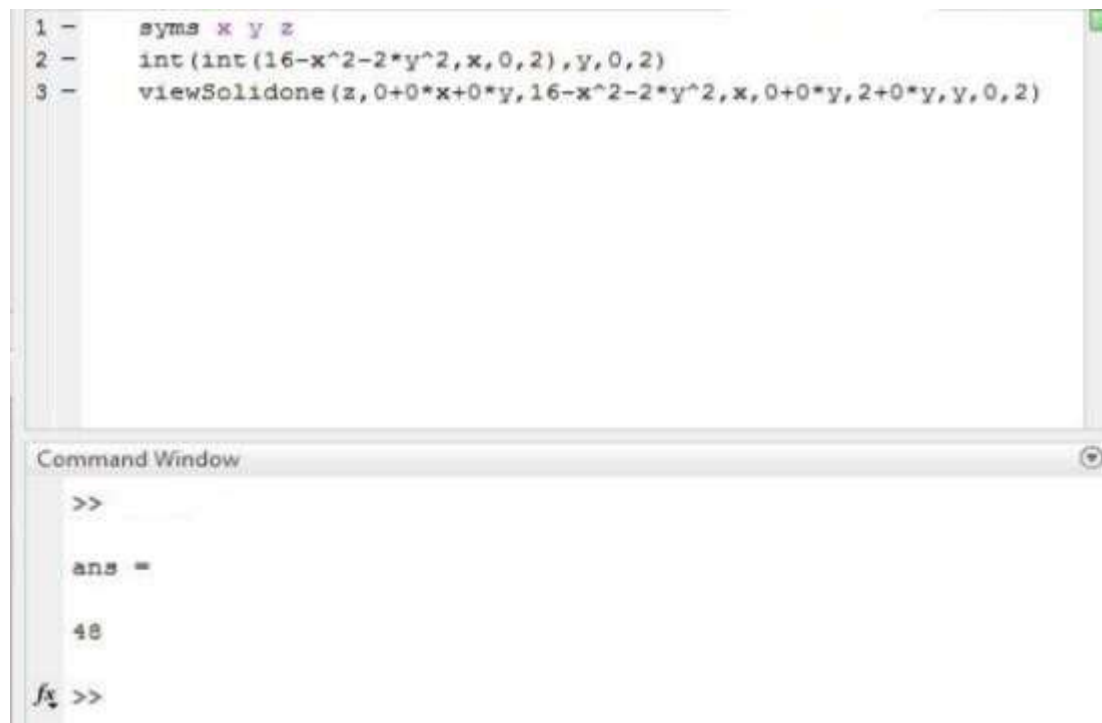


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## Assignment 4

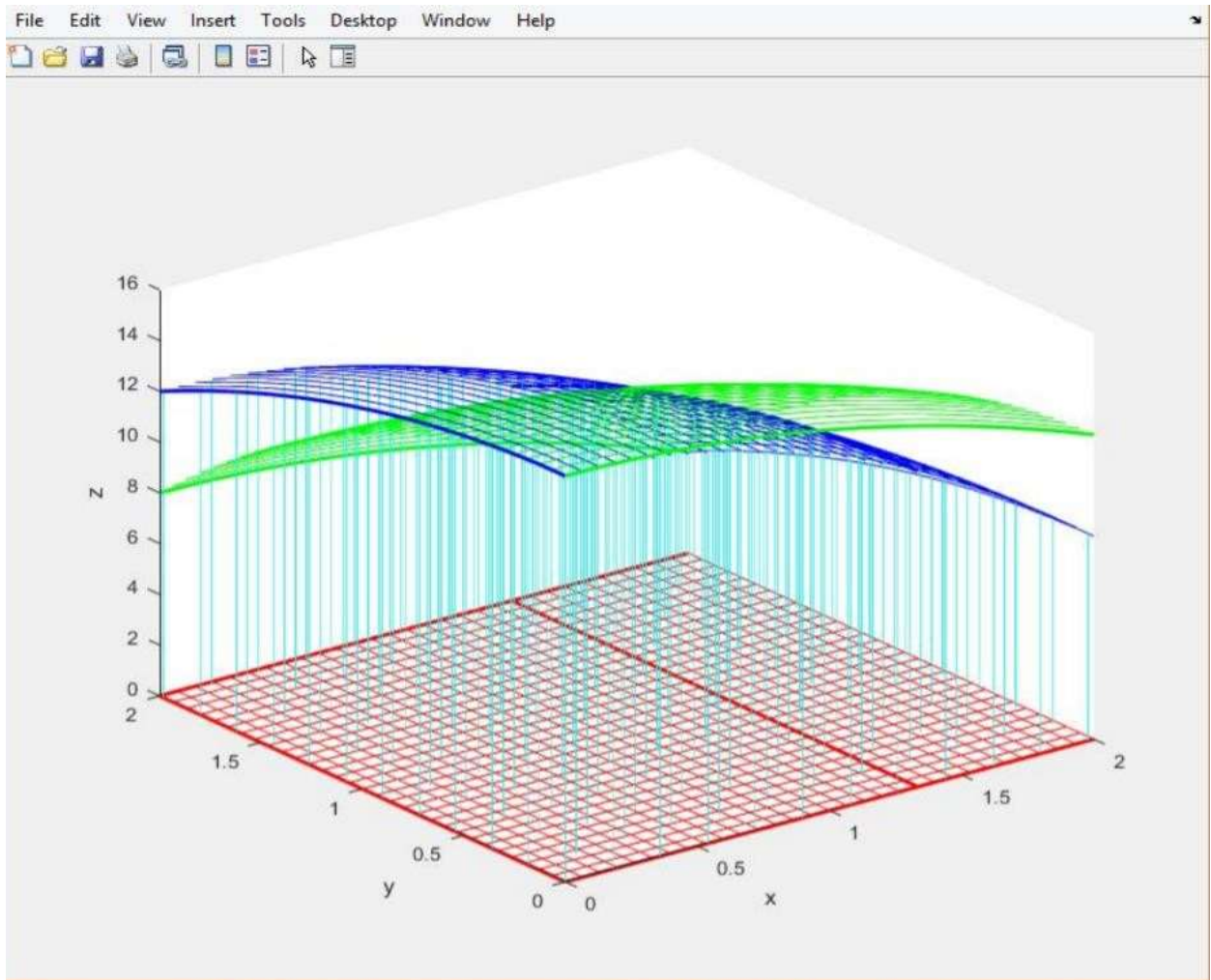
1. Find the volume of the solid S that is bounded by the elliptic paraboloid  $x^2+2y^2+z=16$  , the planes  $x=2$  and  $y=2$  , and the three coordinate planes.



```
1 - syms x y z
2 - int(int(16-x^2-2*y^2,x,0,2),y,0,2)
3 - viewSolidone(z,0+0*x+0*y,16-x^2-2*y^2,x,0+0*y,2+0*y,y,0,2)
```

Command Window

```
>>
ans =
48
fx >>
```

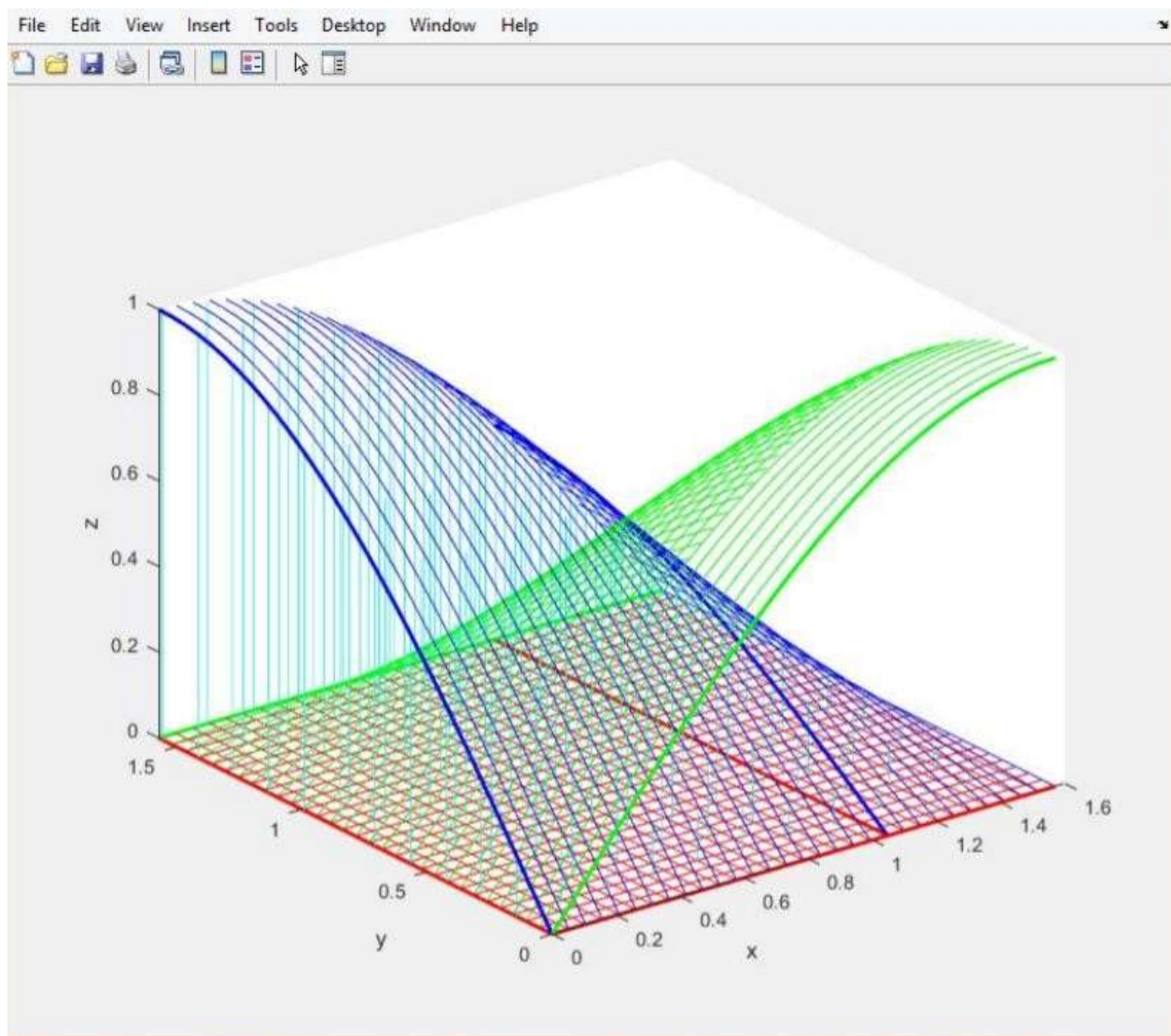


2. Evaluate double integral of  $\sin x \cos y$  in domain  $R$  where  $R$  is  $[0, \pi/2] \times [0, \pi/2]$

```
1 - syms x y z
2 - int(int(sin(x)*cos(y),x,0,pi/2),y,0,pi/2)
3 - viewSolidone(z,0+0*x+0*y,sin(x)*cos(y),x,0+0*y,pi/2+0*y,y,0,pi/2)
```

Command Window

```
>>
ans =
1
fx >>
```



3. Find the volume of the region bounded between the planes  $x + y + 2z = 2$  and  $2x + 2y + z = 4$  in the first octant.

```

1 - syms x y z
2 - xa=0;
3 - xb=1;
4 - ya=0+0*x;
5 - yb=2-x;
6 - zb=4-2*x-2*y;
7 - za=(2-x-y)/2;
8 - I=int(int(int(1+0*z,z,za,zb),y,ya,yb),x,xa,xb)
9 - viewSolid(z,za,zb,y,ya,yb,x,xa,xb)
10

```

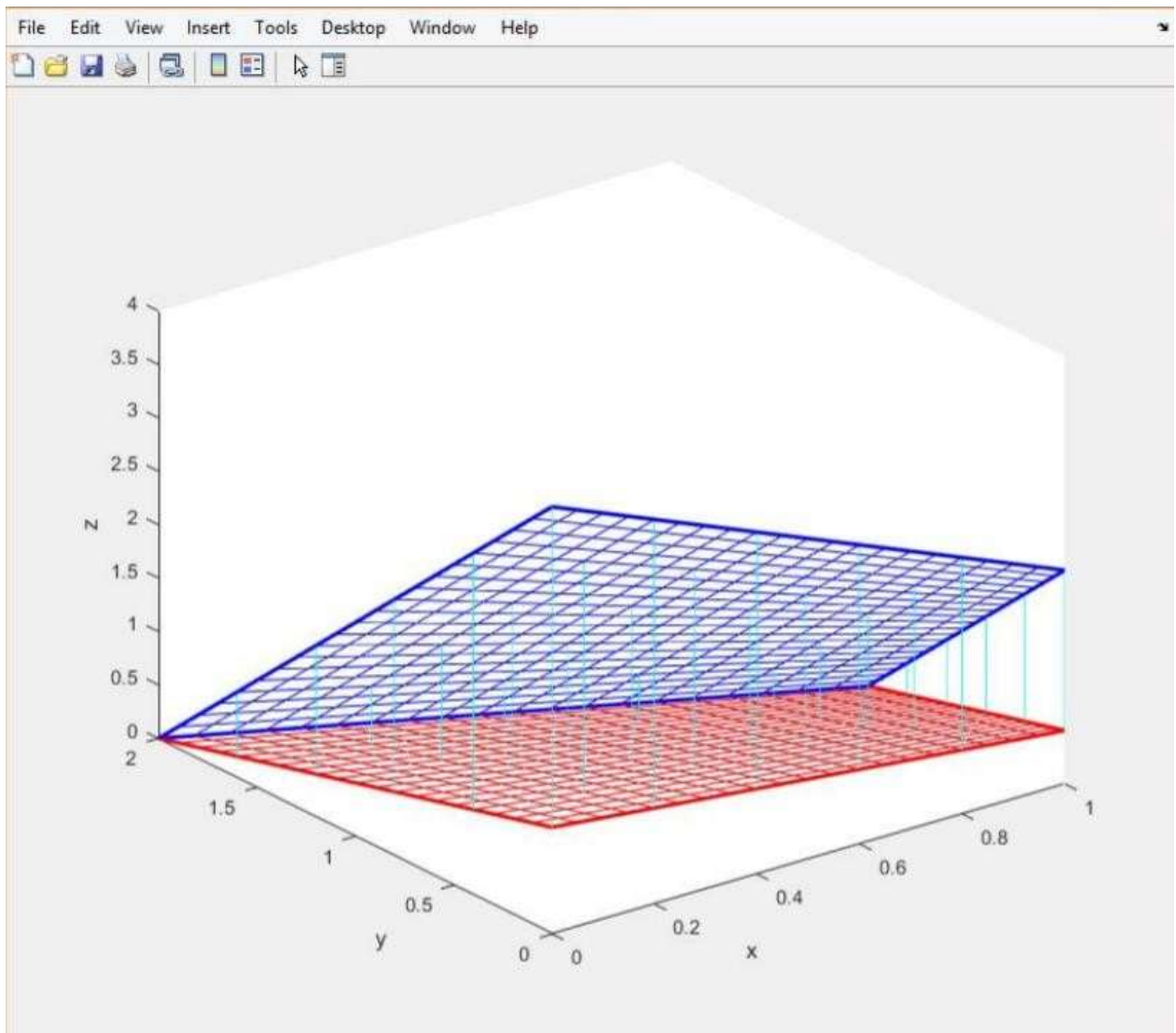
Command Window

>>

I =

7/4

f<sub>x</sub> >>



4. Find the volume of the region cut from the solid elliptical cylinder  $x^2+4y^2$  less than 4 by the xy-plane and the plane  $z = x + 2$ .

```
1 - syms x y z
2 - ya=-1;
3 - yb=1;
4 - xa=-sqrt(4-4*(y^2));
5 - xb=sqrt(4-4*(y^2));
6 - za=0+0*x+0*y;
7 - zb=2+x+0*y;
8 - I=int(int(int(1+0*z,z,za,zb),x,xa,xb),y,ya,yb)
9 - viewSolidone(z,za,zb,x,xa,xb,y,ya,yb)
```

Command Window

>>

I =

4\*pi

f1 >>

