

```
% name-amlan nayak  
% reg no.-19bcd7143  
% date- 20/9/19
```

```
clc  
clear all  
syms x y t  
F = [x-y x];  
r = [cos(t) sin(t)]
```

```
r = (cos(t) sin(t))
```

```
l = 0
```

```
l = 0
```

```
u = 2*pi
```

```
u = 6.2832
```

```
dr1 = diff(r,t)
```

```
dr1 = (-sin(t) cos(t))
```

```
f1 = subs(F,[x,y],[r(1),r(2)])
```

```
f1 = (cos(t) - sin(t) cos(t))
```

```
nf = f1.*dr1
```

```
nf = (-sin(t) (cos(t) - sin(t)) cos(t)^2)
```

```
nf1 = sum(nf)
```

```
nf1 = cos(t)^2 - sin(t) (cos(t) - sin(t))
```

```
i = int(nf1,t,l,u)
```

```
i = 2 pi
```

```
P = inline(vectorize(F(1)), 'x', 'y')
```

```
P =
```

```
Inline function:  
P(x,y) = x - y
```

```
Q = inline(vectorize(F(2)), 'x', 'y')
```

```
Q =
```

```
Inline function:  
Q(x,y) = x
```

```
x = linspace(0,2*pi,10);y=x
```

```
y = 1x10
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869 ...
```

```
[X,Y] = meshgrid(x,y)
```

```
X = 10x10
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869 ...
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
```

```
Y = 10x10
    0    0    0    0    0    0    0    0 ...
    0.6981    0.6981    0.6981    0.6981    0.6981    0.6981    0.6981    0.6981
    1.3963    1.3963    1.3963    1.3963    1.3963    1.3963    1.3963    1.3963
    2.0944    2.0944    2.0944    2.0944    2.0944    2.0944    2.0944    2.0944
    2.7925    2.7925    2.7925    2.7925    2.7925    2.7925    2.7925    2.7925
    3.4907    3.4907    3.4907    3.4907    3.4907    3.4907    3.4907    3.4907
    4.1888    4.1888    4.1888    4.1888    4.1888    4.1888    4.1888    4.1888
    4.8869    4.8869    4.8869    4.8869    4.8869    4.8869    4.8869    4.8869
    5.5851    5.5851    5.5851    5.5851    5.5851    5.5851    5.5851    5.5851
    6.2832    6.2832    6.2832    6.2832    6.2832    6.2832    6.2832    6.2832
```

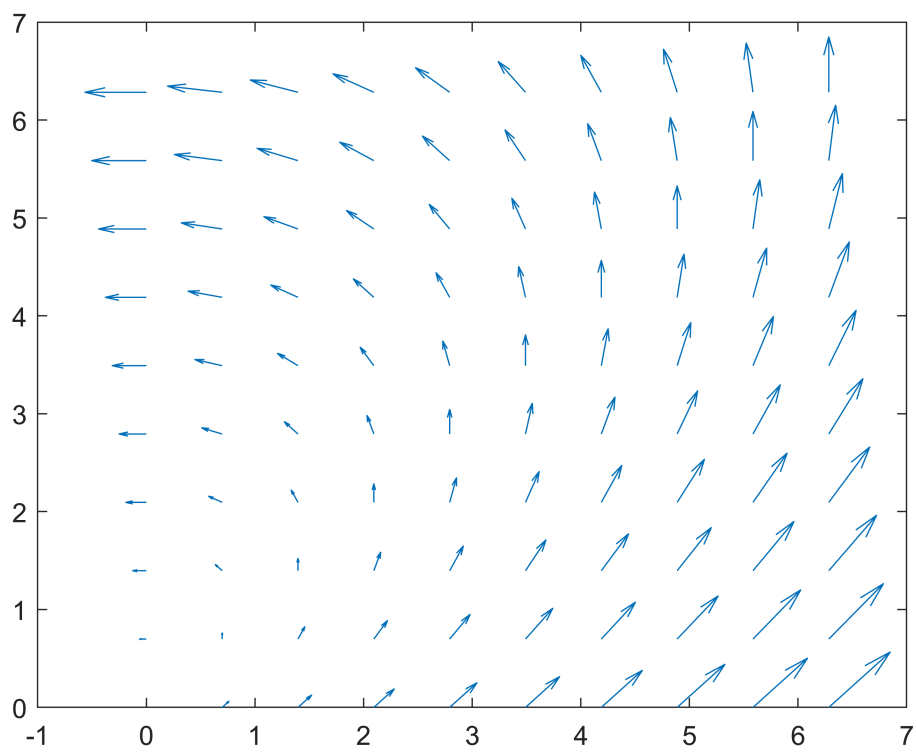
```
U = P(X,Y)
```

```
U = 10x10
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869 ...
   -0.6981    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888
   -1.3963   -0.6981    0    0.6981    1.3963    2.0944    2.7925    3.4907
   -2.0944   -1.3963   -0.6981    0    0.6981    1.3963    2.0944    2.7925
   -2.7925   -2.0944   -1.3963   -0.6981    0    0.6981    1.3963    2.0944
   -3.4907   -2.7925   -2.0944   -1.3963   -0.6981    0    0.6981    1.3963
   -4.1888   -3.4907   -2.7925   -2.0944   -1.3963   -0.6981    0    0.6981
   -4.8869   -4.1888   -3.4907   -2.7925   -2.0944   -1.3963   -0.6981    0
   -5.5851   -4.8869   -4.1888   -3.4907   -2.7925   -2.0944   -1.3963   -0.6981
   -6.2832   -5.5851   -4.8869   -4.1888   -3.4907   -2.7925   -2.0944   -1.3963
```

```
V = Q(X,Y)
```

```
V = 10x10
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869 ...
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
    0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869
```

```
quiver(x,y,U,V)
```



```
% name-amlan nayak
% reg no.-19BCD7143
% date-20/9/19
```

```
clc
clear all
syms x y z t
F = [x z y];
r = [cos(t) sin(t) t]
```

```
r = (cos(t) sin(t) t)
```

```
l = 0
```

```
l = 0
```

```
u = pi/2
```

```
u = 1.5708
```

```
dr1 = diff(r,t)
```

```
dr1 = (-sin(t) cos(t) 1)
```

```
f1 = subs(F,[x,y,z],[r(1),r(2),r(3)])
```

```
f1 = (cos(t) t sin(t))
```

```
nf = f1.*dr1
```

```
nf = (-cos(t) sin(t) t cos(t) sin(t))
```

```
nf1 = sum(nf)
```

```
nf1 = sin(t) - cos(t) sin(t) + t cos(t)
```

```
i = int(nf1,t,l,u)
```

```
i =
```

$$\frac{\pi}{2} - \frac{1}{2}$$

```
P = inline(vectorize(F(1)), 'x', 'y', 'z')
```

```
P =
```

```
Inline function:
P(x,y,z) = x
```

```
Q = inline(vectorize(F(2)), 'x', 'y', 'z')
```

```
Q =
```

```
Inline function:
Q(x,y,z) = z
```

```
R = inline(vectorize(F(3)), 'x', 'y', 'z')
```

```
R =
```

```
Inline function:
```

```
R(x,y,z) = y
```

```
x = linspace(0,2*pi,10);y=x;z=x
```

```
z = 1×10
```

```
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869 ...
```

```
[X,Y,Z] = meshgrid(x,y,z)
```

```
X =
```

```
X(:,:,1) =
```

```
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
```

```
X(:,:,2) =
```

```
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
```

```
X(:,:,3) =
```

```
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
```

```
X(:,:,4) =
```

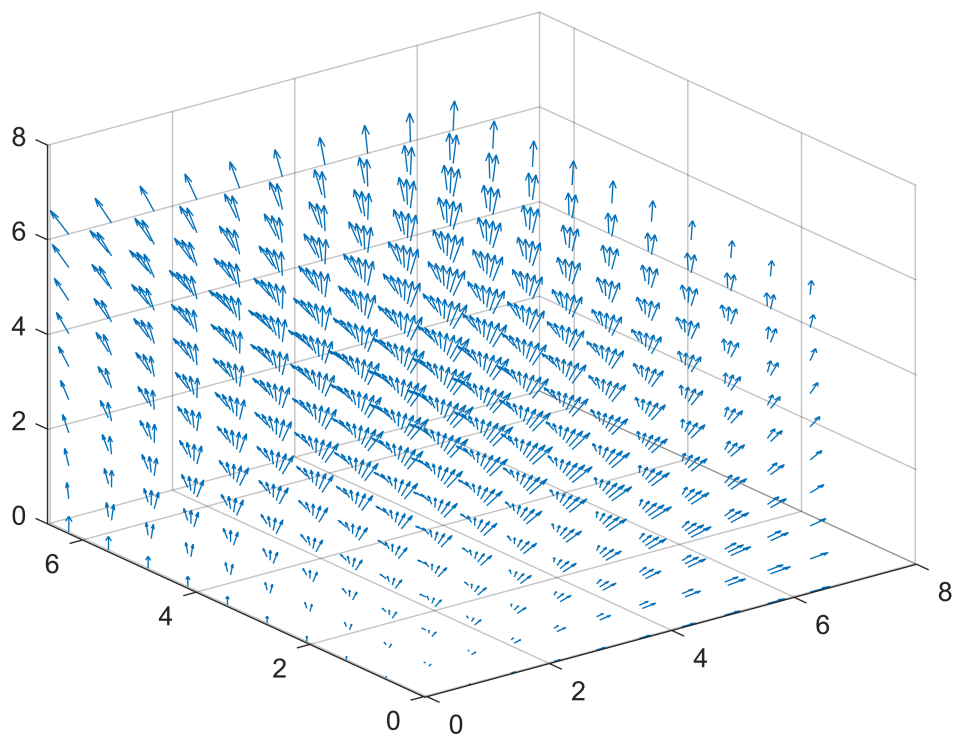
```
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
0    0.6981    1.3963    2.0944    2.7925    3.4907    4.1888    4.8869    5.5851    6.2832
```


[illegible][illegible][illegible][illegible][illegible]

W(:, :, 10) =

0	0	0	0	0	0	0	0	0	0
0.6981	0.6981	0.6981	0.6981	0.6981	0.6981	0.6981	0.6981	0.6981	0.6981
1.3963	1.3963	1.3963	1.3963	1.3963	1.3963	1.3963	1.3963	1.3963	1.3963
2.0944	2.0944	2.0944	2.0944	2.0944	2.0944	2.0944	2.0944	2.0944	2.0944
2.7925	2.7925	2.7925	2.7925	2.7925	2.7925	2.7925	2.7925	2.7925	2.7925
3.4907	3.4907	3.4907	3.4907	3.4907	3.4907	3.4907	3.4907	3.4907	3.4907
4.1888	4.1888	4.1888	4.1888	4.1888	4.1888	4.1888	4.1888	4.1888	4.1888
4.8869	4.8869	4.8869	4.8869	4.8869	4.8869	4.8869	4.8869	4.8869	4.8869
5.5851	5.5851	5.5851	5.5851	5.5851	5.5851	5.5851	5.5851	5.5851	5.5851
6.2832	6.2832	6.2832	6.2832	6.2832	6.2832	6.2832	6.2832	6.2832	6.2832

quiver3(X,Y,Z,U,V,W)



```
% name - amlan nayak
% reg no.-19BCD7143
% date-20/9/19
syms x y t m n
F = [m,n]
```

$$F = \begin{pmatrix} m & n \end{pmatrix}$$

$$x = \cos(t)$$

$$x = \cos(t)$$

$$y = \sin(t)$$

$$y = \sin(t)$$

$$dx = \text{diff}(x,t)$$

$$dx = -\sin(t)$$

$$dy = \text{diff}(y,t)$$

$$dy = \cos(t)$$

$$m = x - y$$

$$m = \cos(t) - \sin(t)$$

$$n = x$$

$$n = \cos(t)$$

$$i = \text{int}(m*dy,t,0,2*\pi)$$

$$i = \pi$$

$$j = \text{int}(n*dx,t,0,2*\pi)$$

$$j = 0$$

$$\text{flux} = i-j$$

$$\text{flux} = \pi$$