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Lab3

CODE1

```
clc
clear all
syms x y z
f=x*y*z;
F =[(x^2)*y,y,y*z];
vars=[x,y,z];
fprintf('20BCD7171 MAJJIGA JASWANTH')
grad=gradient(f,vars);
divf=divergence(F,vars)
curlf=curl(F,vars)

```

Command Window

```
20BCD7171 MAJJIGA JASWANTH
divf =

y + 2*x*y + 1


curlf =

   z
   0
-x^2

fx >>
```

Code 2

```
clc
clear all
syms x y z
f=x*cos(y*z);
vars = [x,y,z];
p = [-2,2,1]
u = [2,1,5]
norm(u);
unitu = u./norm(u);
fprintf('20BCD7171 MAJJIGA JASWANTH')
grad = gradient(f,vars)
gradval = subs(grad,vars,p);
DirDer = double(dot(gradval,unitu))
```

Command window

```
p =

    -2     2     1


u =

     2     1     5

20BCD7171 MAJJIGA JASWANTH
grad =

     cos(y*z)
-x*z*sin(y*z)
-x*y*sin(y*z)


DirDer =

    3.5004

fx >>
```

CODE 3

```
clc
clear all
syms x y
f1 = inline((x^2)*y,'x','y');
f2 = inline(x*y,'x','y');
x = linspace(-1,1,10);
y=x;
[X,Y] = meshgrid(x,y);
U =f1(x,y);
V =f2(x,y);
quiver(x,y,U,V,1)
view(-30,60)
xlabel('x')
ylabel('y')
title('20BCD7171 MAJJIGA JASWANTH')
```

mand Window

>>
>>