

---

```
% name-amlan nayak ;question-1
% reg no.-19bcd7143
% date-8/11/19
syms x y z
f=[x*y y*z z*x];
vars=[x y z]
divergence(f,vars)
```

```
vars =
```

```
[ x, y, z]
```

```
ans =
```

```
x + y + z
```

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```
% name-amlan nayak
% reg no.-19bcd7143
% date-8/11/19
syms x y z
F=[x*y y*z z*x]
vars=[x y z]
curl(F,vars)
```

$F =$

$[ \ x*y, \ y*z, \ x*z ]$

$vars =$

$[ \ x, \ y, \ z ]$

$ans =$

$-y$   
 $-z$   
 $-x$

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```
% name-amlan nayak ;question-2
% reg no.-19bcd7143
% date-8/11/19
clear all
clc
syms i(t) r l v e
l=0.5
e=20
r=100
f=e/l==(r/l)*i + diff(i,t)
F(t)=dsolve(f,i(0)==0)
F(0.5)
```

$l =$

$0.5000$

$e =$

$20$

$r =$

$100$

$f(t) =$

$40 == 200*i(t) + diff(i(t), t)$

$F(t) =$

$1/5 - exp(-200*t)/5$

$ans =$

$1/5 - exp(-100)/5$

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```
% name-amlan nayak ; question-3
% reg no.-19bcd7143
% date-8/11/19
syms a
int(int(int(1,0,a),0,a),0,a)
```

```
ans =
```

```
a^3/6
```

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```
% name-amlan nayak ;question-4
% reg no.-19bcd7143
% date-8/11/19
clear all
clc
syms y(x)
Dy=diff(y)
ode=diff(y,x,2) + 2*diff(y,x) + y==sin(x)
ySol(x) = dsolve(ode)

Dy(x) =

diff(y(x), x)

ode(x) =

y(x) + 2*diff(y(x), x) + diff(y(x), x, x) == sin(x)

ySol(x) =

C3*exp(-x) - cos(x)/2 + C4*x*exp(-x)
```

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