

```

commandwindow
clear
clc
syms t
e1=('Dy+3*x=exp(-2*t)')
e2=('Dx-3*y=exp(2*t)')
[x,y]=dsolve(e1,e2,'x(0)=30','y(0)=30')
y=(5*12170^(1/2)*cos(3*t + atan(77/79)))/13 - (3*exp(2*t))/13
- (2*exp(-2*t))/13
x =(3*exp(-2*t))/13 + (2*exp(2*t))/13 + (5*12170^(1/2)*cos(3*t
- atan(79/77)))/13
tn=[0:0.1:3.5]
h=subs(y,tn)
w=subs(x,tn)
figure(1)
plot(tn,h,tn,w)
axis tight
grid on
grid minor
xlabel('time')
ylabel('system responses')

```

```
commandwindow
clear
clc
syms a w t k
f(t)=k*exp(-a*t)*cos(w*t)
laplace (f(t))
```

```
commandwindow
clear
clc
syms i
dsolve('l*Di+r*i=e')
```

```
commandwindow
```

```
clear
```

```
clc
```

```
syms s
```

```
f(s)=3.142/(s^2+10*3.142*s+24*3.142^2)
```

```
ilaplace(f(s))
```

```
commandwindow
clear
clc
syms t
tn=[0:0.1:50]
x=17.6*exp(-2*t)-12.7*exp(-3*t)+0.1*sin(t)+0.1*cos(t)
s=subs(x,tn)
figure(1)
plot(tn,s)
axis tight
grid on
grid minor
xlabel("time")
ylabel("response of the system")
```