

WEST DA - DRIBCM ASSEMBLY

161 ENGR 061 074

MECHANICAL ENGINEERING

ENGR 381

QUESTION 4

```

e16ENG06011.m x b16ENG06011.m x d16ENG06011.m x c16ENG06011.m x a16ENG06011.m
1 - commandwindow
2 - clear
3 - clc
4 - syms t
5 - tn=[0:0.1:50]
6 - x=17.6*exp(-2*t)-12.7*exp(-3*t)+0.1*sin(t)+0.1*cos(t)
7 - s=subs(x,tn)
8 - figure(1)
9 - plot(tn,s)
10 - axis tight
11 - grid on
12 - grid minor
13 - xlabel("time")
14 - ylabel("response of the system")
15

```

Command Window

New to MATLAB? See resources for [Getting Started](#).

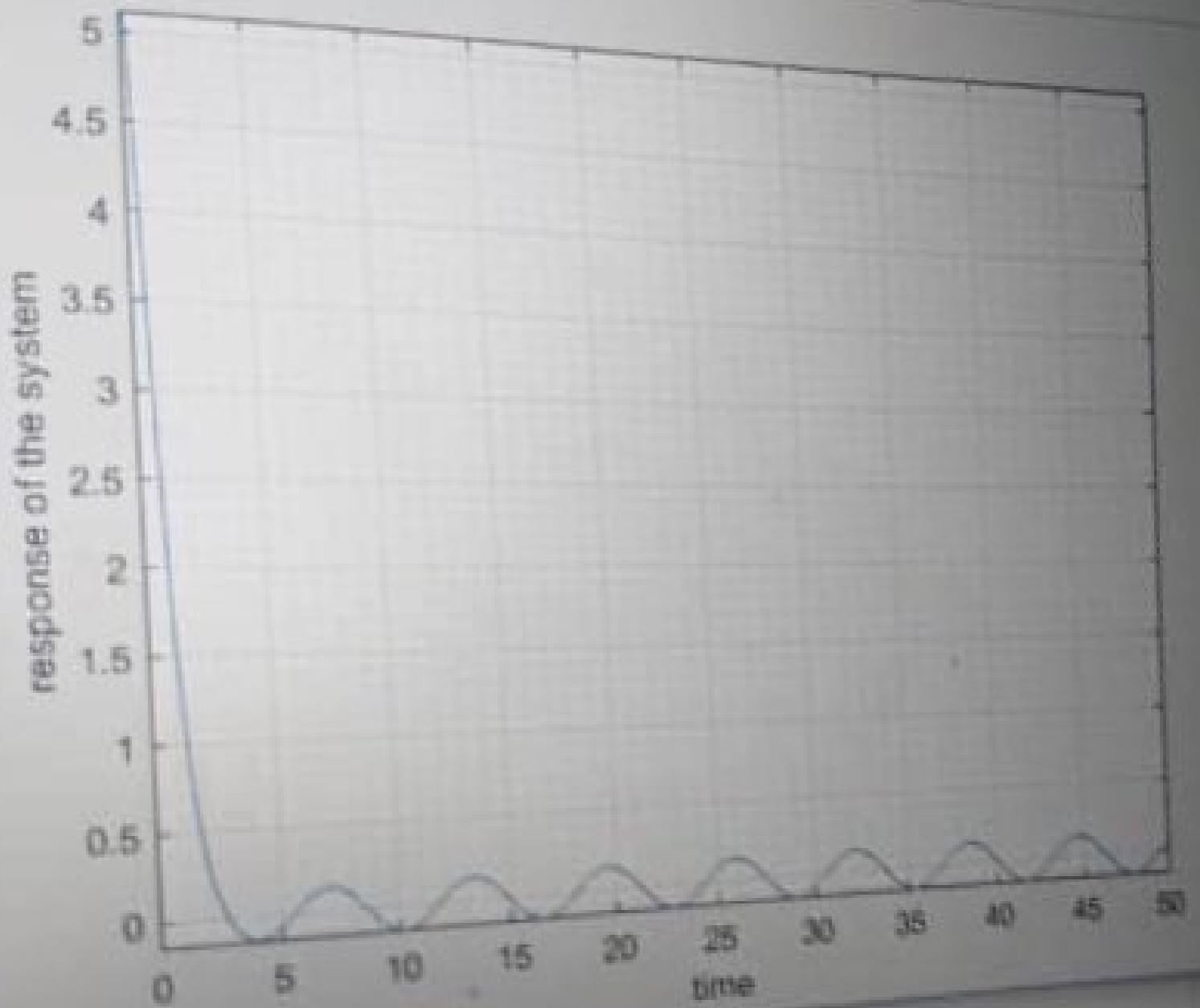
| (2425912382977591*cos(7109700239363871/8007198254702921)/371740088032 + 3/16) * exp(-2.000000000000000i * t) + ...

w =

| (2425912382977591*cos(7109700239363871/8007198254702921)/371740088032 + 3/16) * exp(-2.000000000000000i * t) + ...

f1 >>

4



```
1 - commandwindow
2 - clear
3 - clc
4 - syms s
5 - f(s) = 3.142/(s^2+10*3.142*s+24*3.142^2)
6 - ilaplace(f(s))
```

Command Window

New to MATLAB? See resources for [Getting Started](#)

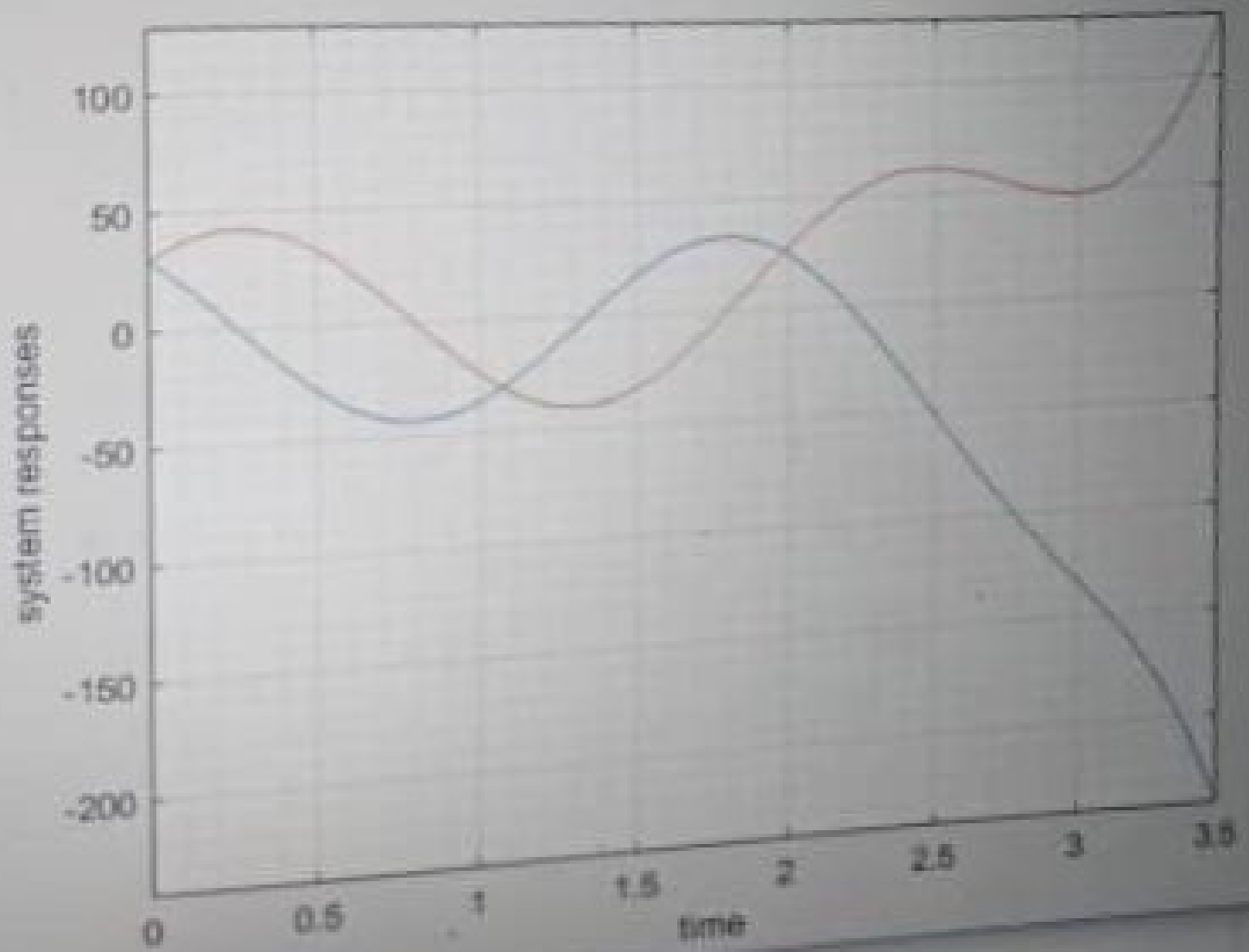
```
100*exp(-2*t)/5 - 127*exp(-3*t)/10 + cos(t)/10 + sin(t)/10

s =

1/5, cos(t)/10 + 100*exp(-1/5*t)/5 - 127*exp(-3/10*t)/10 + sin(t)/10, cos(10*t)
```

Figure 1

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```

a16ENG06011.m x b16ENG06011.m x d16ENG06011.m x c16ENG06011.m x a16ENG06011.m x +
1 -  comandwindow
2 -  clear
3 -  clc
4 -  syms t
5 -  e1=(Dy+3*x==exp(-2*t)')
6 -  e2=(Dx-3*y==exp(2*t)')
7 -  [x,y]=dsolve(e1,e2,'x(0)=30','y(0)=30')
8 -  ye=(5*12170^(1/2)*cos(3*t + atan(77/79)))/13 - (3*exp(2*t))/13 - (2*exp(-2*t))/13
9 -  x = (3*exp(-2*t))/13 + (2*exp(2*t))/13 + (5*12170^(1/2)*cos(3*t - atan(79/77)))/13
10 -  tn=[0:0.1:3.5]
11 -  h=subs(y,tn)
12 -  w=subs(x,tn)
13 -  figure(1)
14 -  plot(tn,h,tn,w)
15 -  axis tight
16 -  grid on
17 -  grid minor
18 -  xlabel('time')
19 -  ylabel('system responses')
20

```

```

Command Window
New to MATLAB? See resources for Getting Started.

(88*exp(-2*t))/5 - (127*exp(-3*t))/10 + cos(t)/10 + sin(t)/10

s =

[ 5, cos(1/10)/10 + (88*exp(-1/5))/5 - (127*exp(-3/10))/10 + sin(1/10)/10, cos(1/10)/10 + (88*exp(-3/5))
]
>>

```

e-16ENG06011.m x b16ENG06011.m x d16ENG06011.m x c16ENG06011.m x a16ENG06011.m

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

Command Window

For more information on MATLAB, see resources for Getting Started.

e16ENG06011.m X

b16ENG06011.m X

d16ENG06011.m

```
1 - commandwindow
2 - clear
3 - clc
4 - syms i
5 - dsolve('l*Di+r*i=e')
```

Command Window

New to MATLAB? See resources for [Getting Started](#)

1-425912392977591*cos(0.92876716468101197997208287409)