Frequency response of second order system

Batch no : 16

511821,511845,511873,511875,511880

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Editor - D:\New folder\CS_Lab\lab20.m

lab20.m

```
1 -  w=input('enter the natural frequency');
2 -  e=input('enter the damping ratio');
3 -  num=[w*w];
4 -  den=[1 2*w*e w*w];
5 -  g=tf(num,den);
6
7 -  figure(1)
8 -  bode(g);
9 -  margin(g);
```

Figure 1

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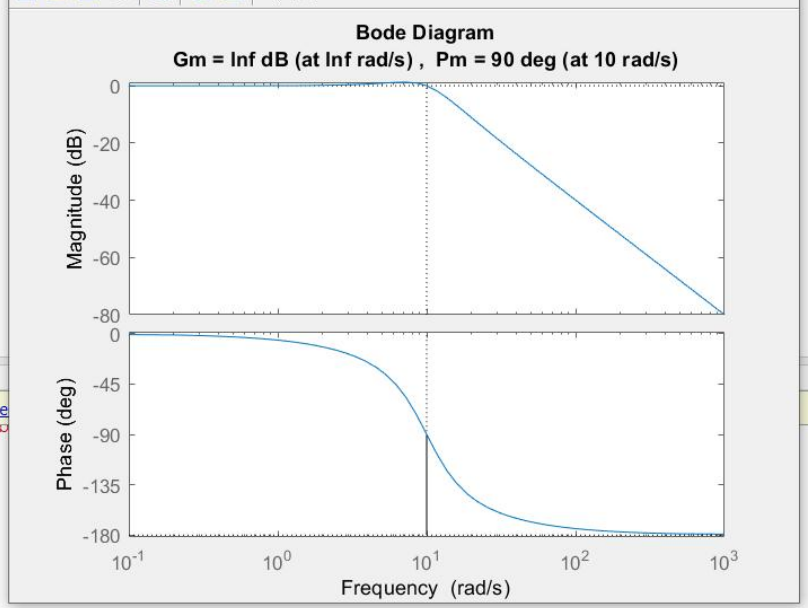

Command Window

New to MATLAB? See resources for Getting Starte

```
Error in lab20 (line 1)
num=[w*w];

>> lab20
enter the natural frequency10
enter the damping ratio0.5
>>
```

Workspace

Name	Value
den	[1,10,100]
e	0.5000
g	1x1 tf
num	100
w	10

Type here to search

U: 1.11 kbit/s D: 0.86 kbit/s ENG IN 1:10 PM 28-Jan-21

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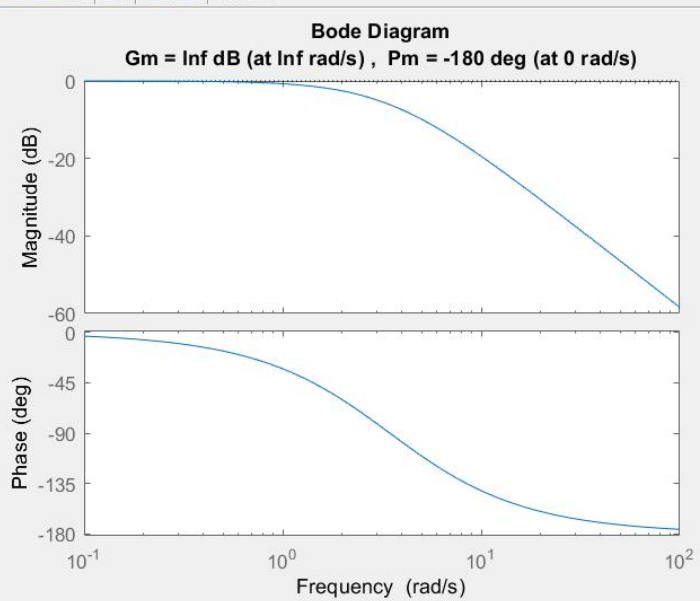
Figure 1

File Edit View Insert Tools Desktop Window Help



Select a file to view details

Editor - D:\New folder\CS_Lab\lab20.m

lab20.m lab21.m

```
w=input('enter the natural frequency');
e=input('enter the damping ratio');
num=[w*w];
den=[1 2*w*e w*w];
g=tf(num,den);

figure(1)
bode(g);
margin(g);
```

Command Window

New to MATLAB? See resources for Getting Started.

```
sys =

        100
  ----------------
  s^2 + 10 s + 100

Continuous-time transfer functic


mr =

    1.1547


wr =

    7.0610


wb =

   12.7119

>> lab20
enter the natural frequency3.464
enter the damping ratio1.01
>>
```

Workspace: Name — den, e, g, mr, num, sys, w, wb, wr

Type here to search

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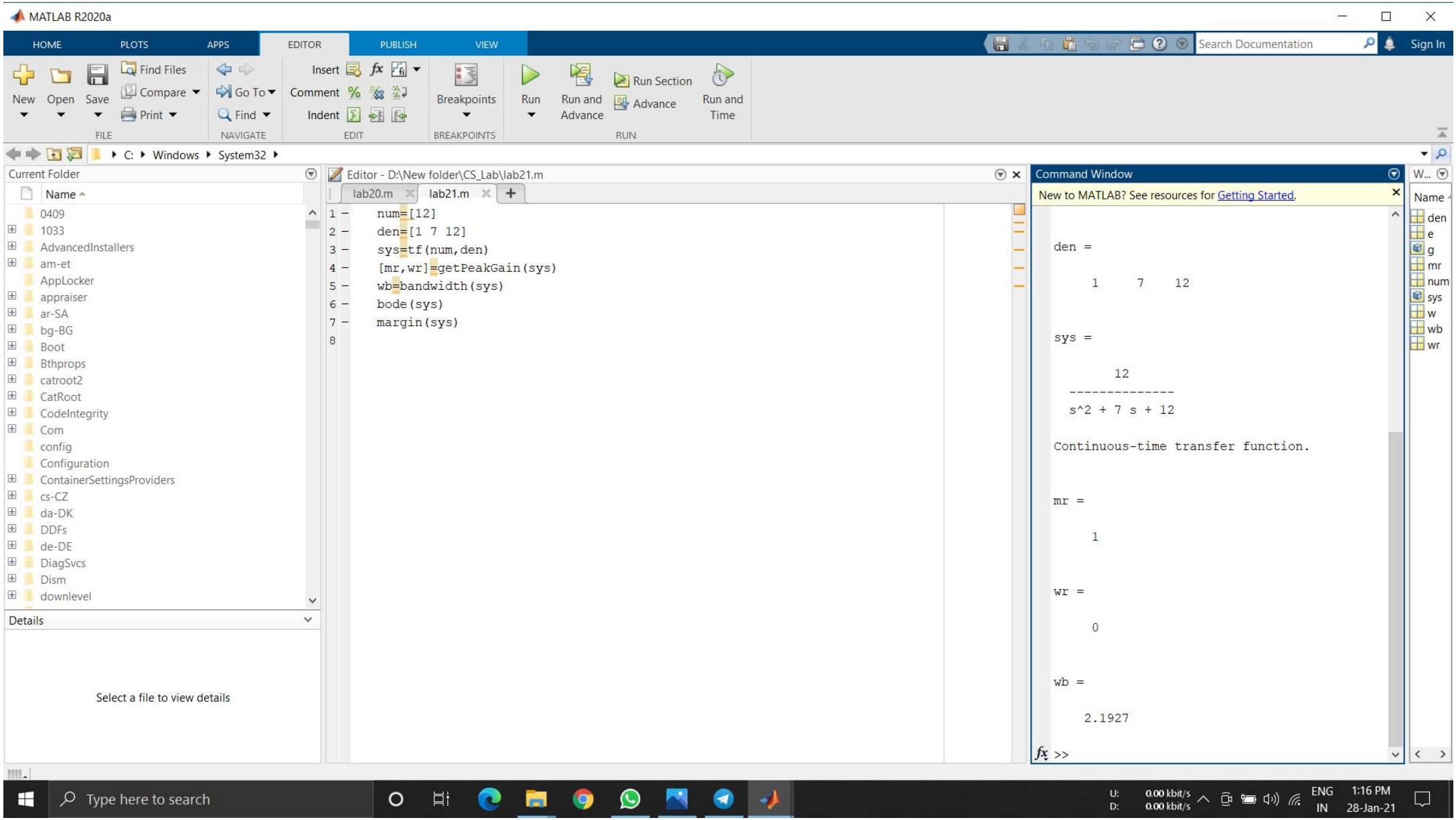
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downlevel
Details
Select a file to view details
Editor - D:\New folder\CS_Lab\lab21.m
lab20.m
lab21.m
1 – num=[12]
2 – den=[1 7 12]
3 – sys=tf(num,den)
4 – [mr,wr]=getPeakGain(sys)
5 – wb=bandwidth(sys)
6 – bode(sys)
7 – margin(sys)
8
Command Window
New to MATLAB? See resources for Getting Started.
den =
1 7 12
sys =
12
s^2 + 7 s + 12
Continuous-time transfer function.
mr =
1
wr =
0
wb =
2.1927
>>
Name
den
e
g
mr
num
sys
w
wb
wr
Type here to search
U: 0.00 kbit/s
D: 0.00 kbit/s
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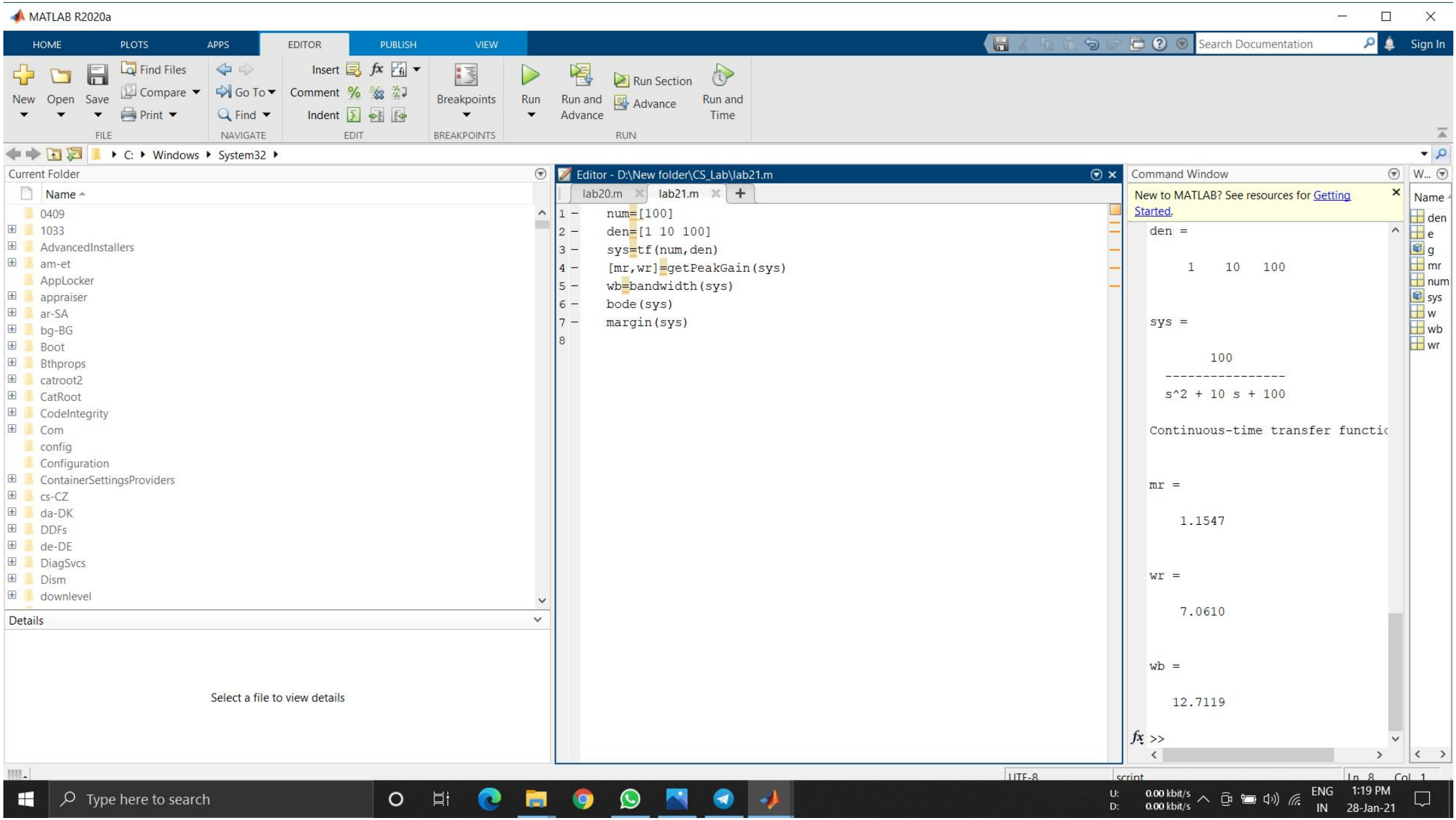
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DiagSvcs
Dism
downlevel
Details
Select a file to view details
Editor - D:\New folder\CS_Lab\lab21.m
lab20.m
lab21.m
1 – num=[100]
2 – den=[1 10 100]
3 – sys=tf(num,den)
4 – [mr,wr]=getPeakGain(sys)
5 – wb=bandwidth(sys)
6 – bode(sys)
7 – margin(sys)
8
Command Window
New to MATLAB? See resources for Getting Started.
den =
1 10 100
sys =
100
s^2 + 10 s + 100
Continuous-time transfer functi
mr =
1.1547
wr =
7.0610
wb =
12.7119
>>
W...
Name
den
e
g
mr
num
sys
w
wb
wr
UTF-8
script
Ln 8 Col 1
Type here to search
U: 0.00 kbit/s
D: 0.00 kbit/s
ENG
IN
1:19 PM
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