2.

a.

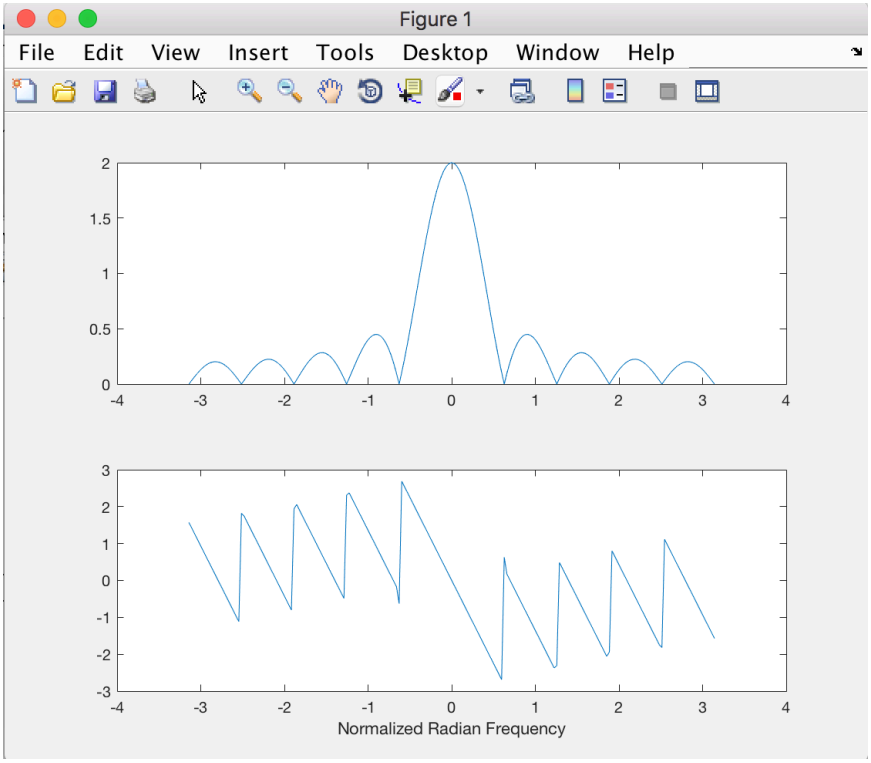
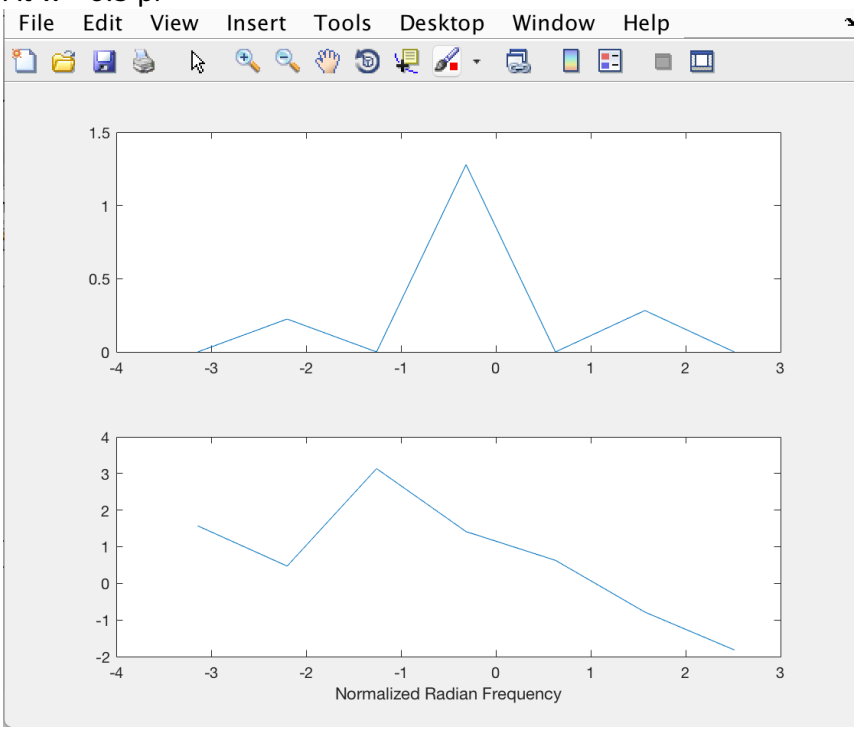
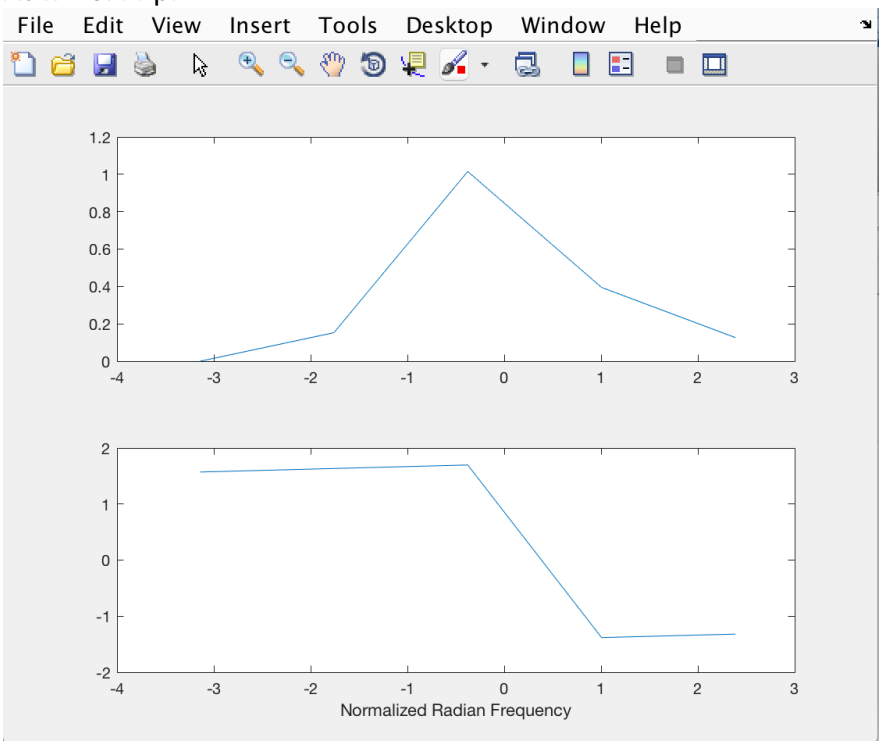


Figure 1
File Edit View Insert Tools Desktop Window Help
Normalized Radian Frequency

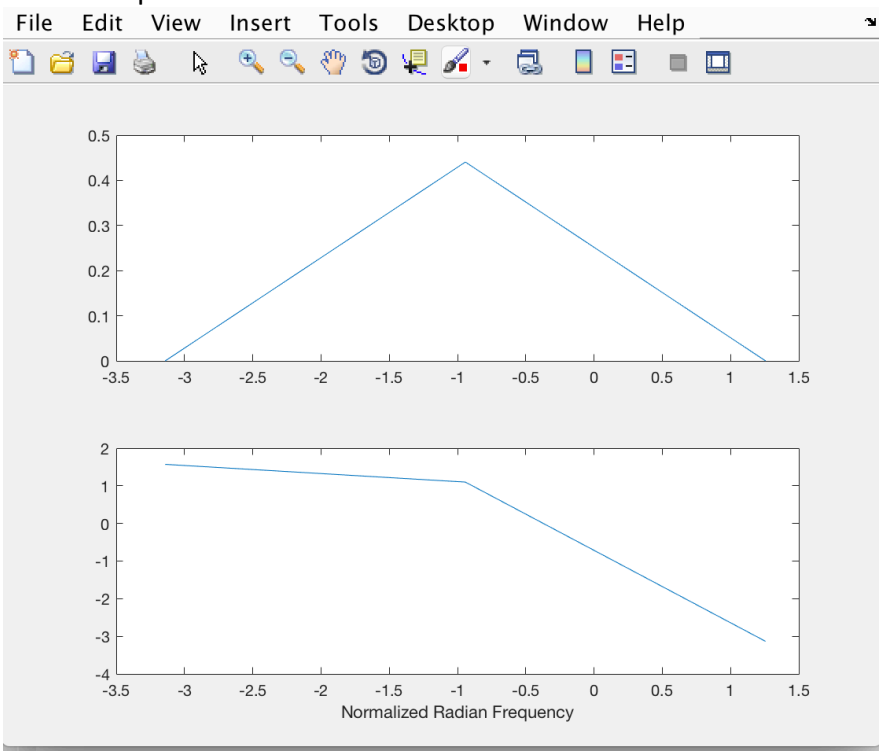
At w^=0.3 pi


File Edit View Insert Tools Desktop Window Help
Normalized Radian Frequency

At w^=0.44 pi



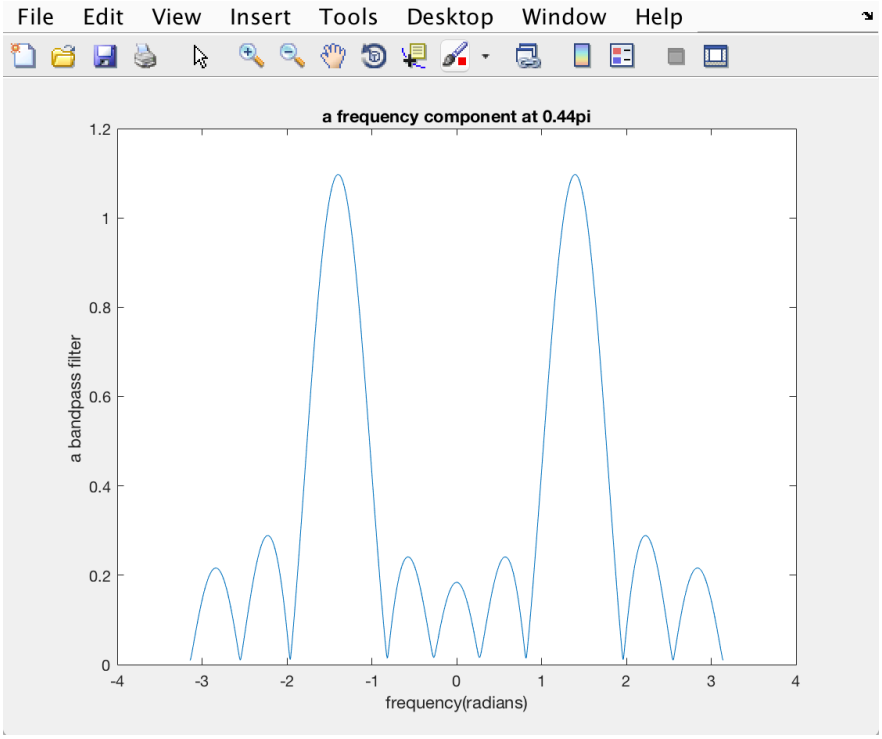
At w^=0.7 pi



b.

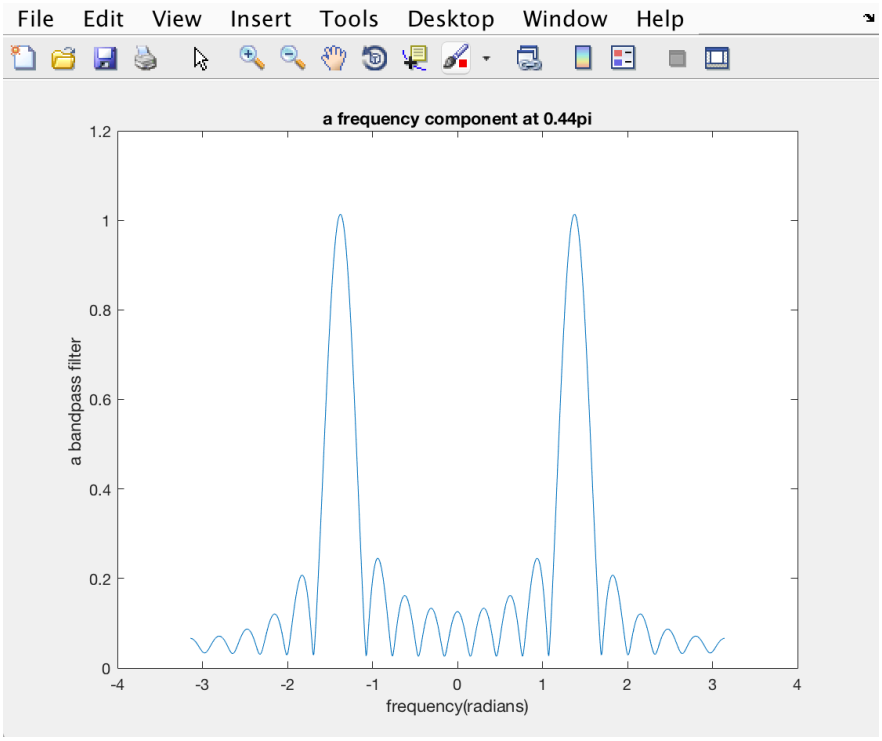
At L= 10

PassBand Width = 0.162



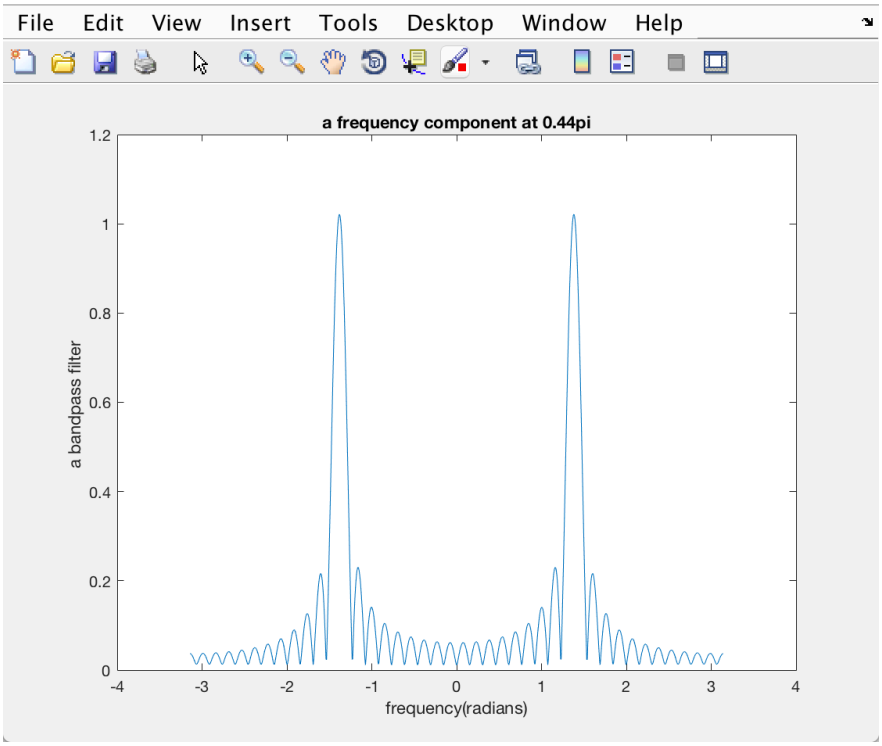
At L=20,

PassBand Width = 0.0880



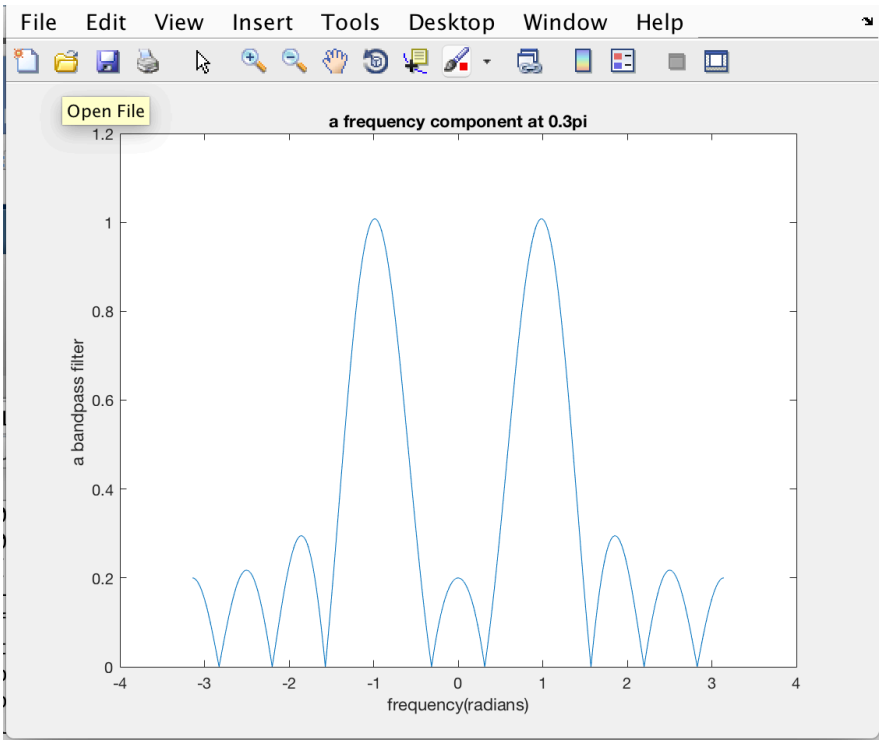
At L = 40,

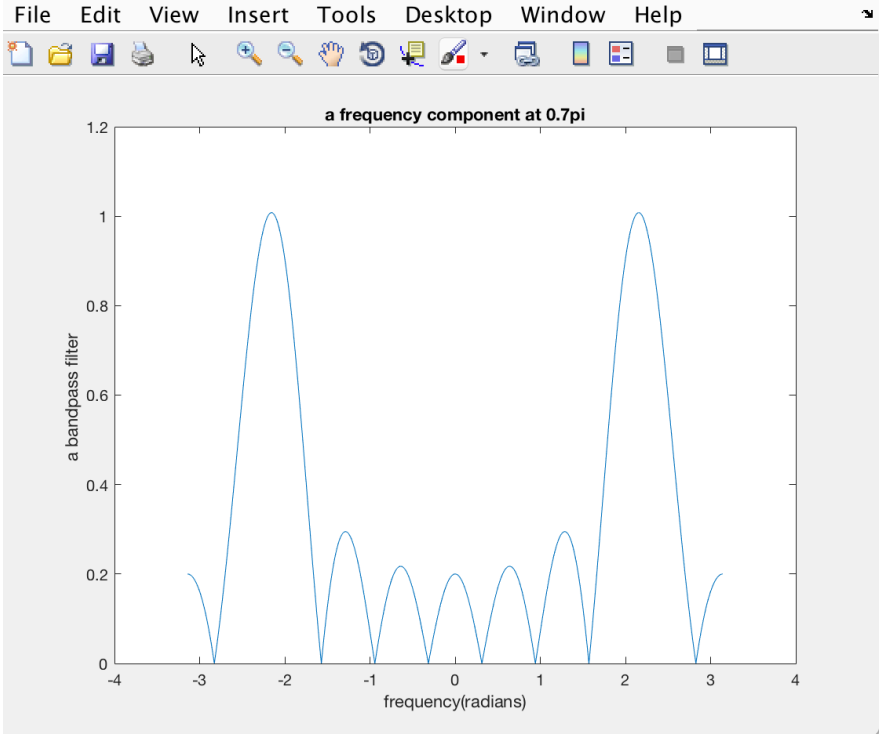
PassBand Width = 0.042



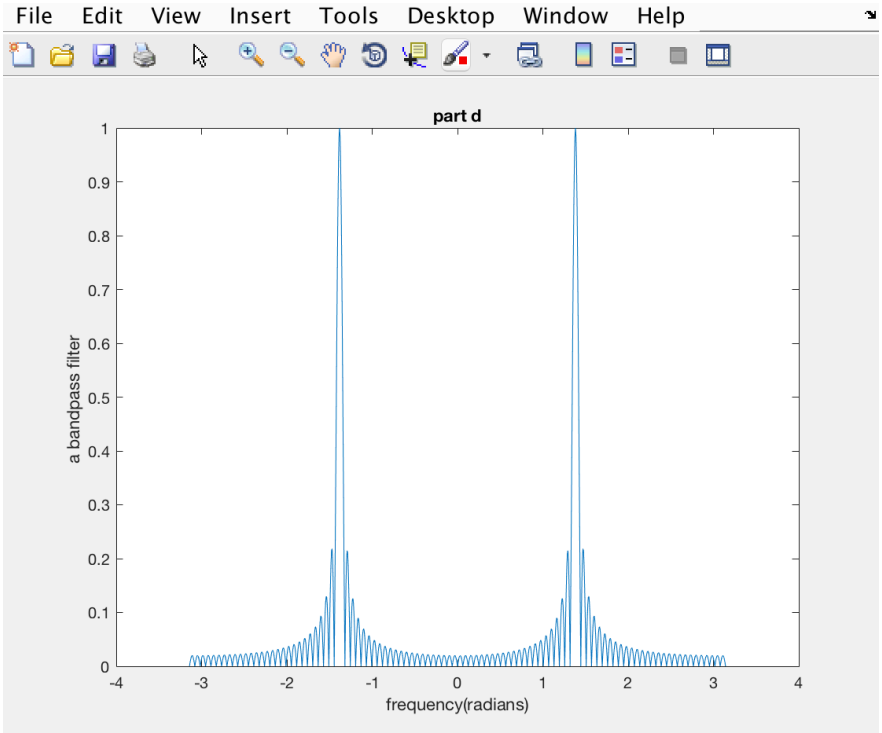
If L is doubled then passband width starts to decrease proportionally, while when L is half, the passband width starts to increase proportionally.

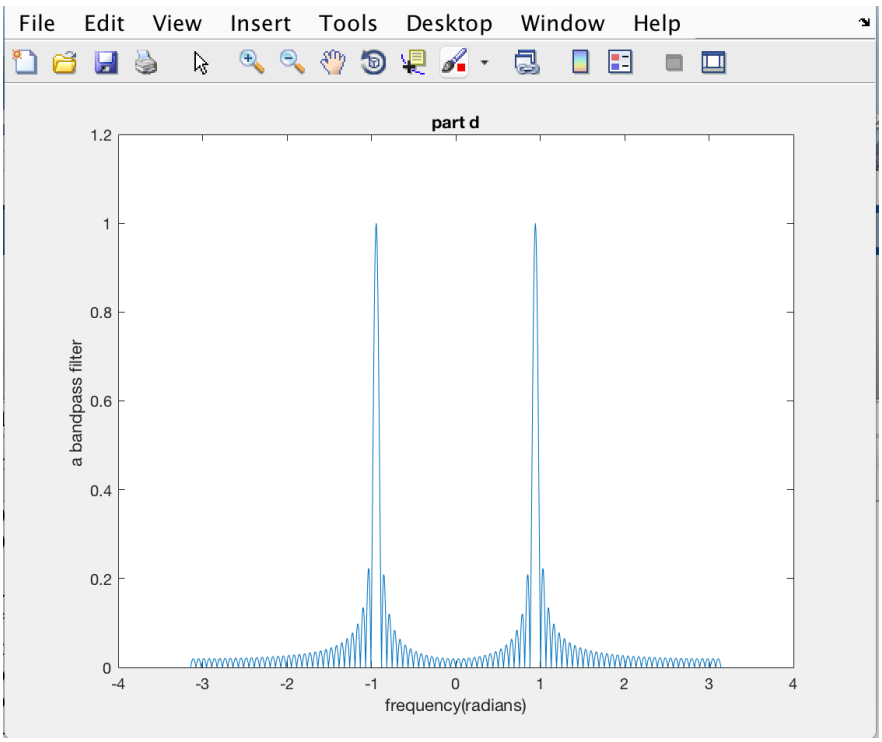
c.




File Edit View Insert Tools Desktop Window Help
a frequency component at 0.7pi
a bandpass filter
frequency(radians)
1.2
1
0.8
0.6
0.4
0.2
0
-4 -3 -2 -1 0 1 2 3 4

d.


File Edit View Insert Tools Desktop Window Help
part d
a bandpass filter
frequency(radians)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-4 -3 -2 -1 0 1 2 3 4


File Edit View Insert Tools Desktop Window Help
part d
a bandpass filter
frequency(radians)
1.2
1
0.8
0.6
0.4
0.2
0
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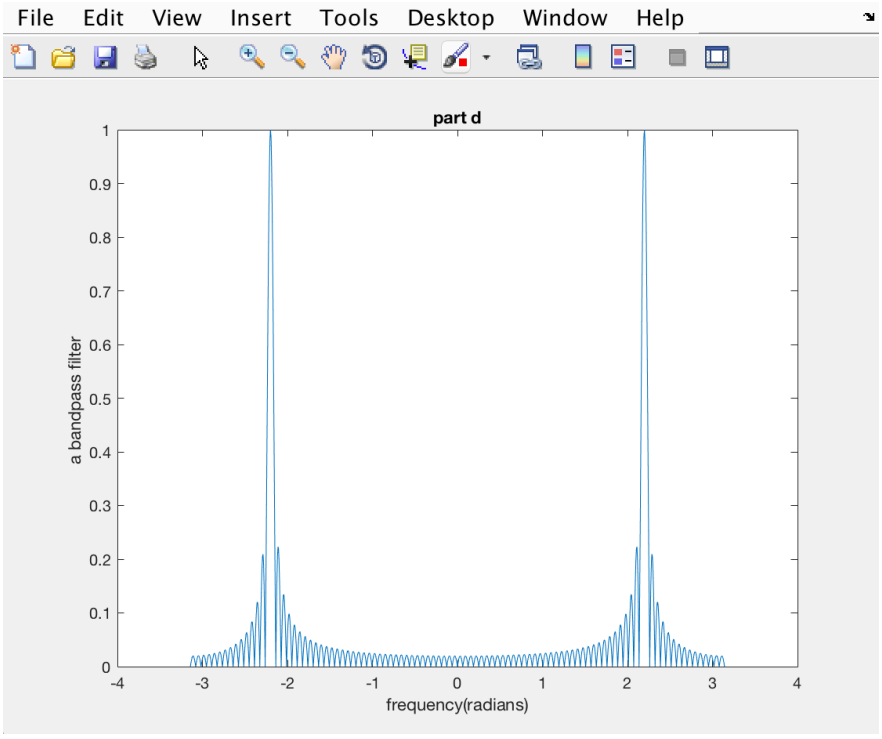
-3
-2
-1
0
1
2
3
4


File Edit View Insert Tools Desktop Window Help
part d
a bandpass filter
frequency(radians)
1
0.9
0.8
0.7
0.6
0.5
0.4
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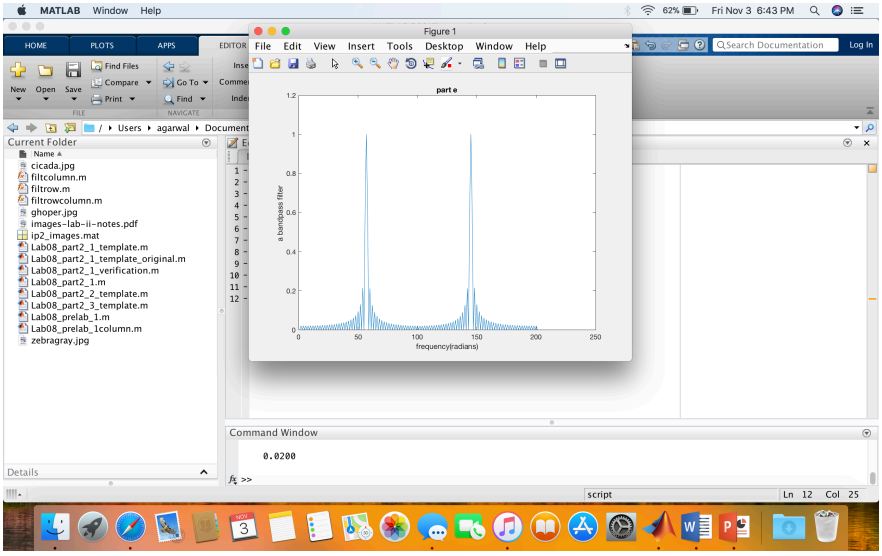
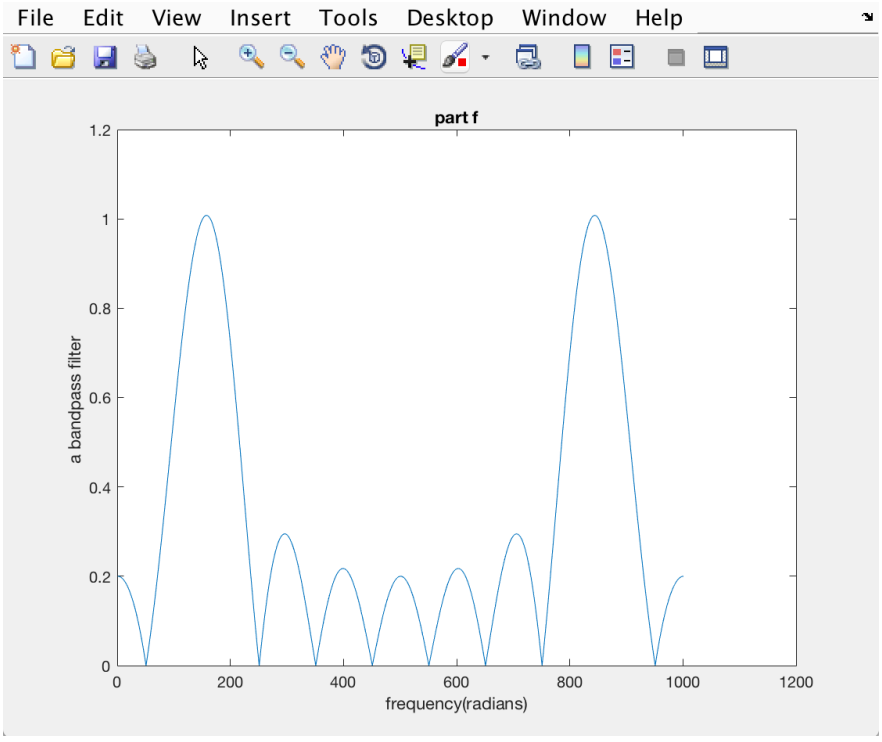
0.2
0.1
0
-4
-3
-2
-1
0
1
2
3
4

e.


MATLAB Window Help
Figure 1
File Edit View Insert Tools Desktop Window Help
part e
a bandpass filter
frequency(radians)
Current Folder
Command Window
0.0200

f.


File Edit View Insert Tools Desktop Window Help
part f
a bandpass filter
frequency(radians)
0
0.2
0.4
0.6
0.8
1
1.2
0
200
400
600
800
1000
1200