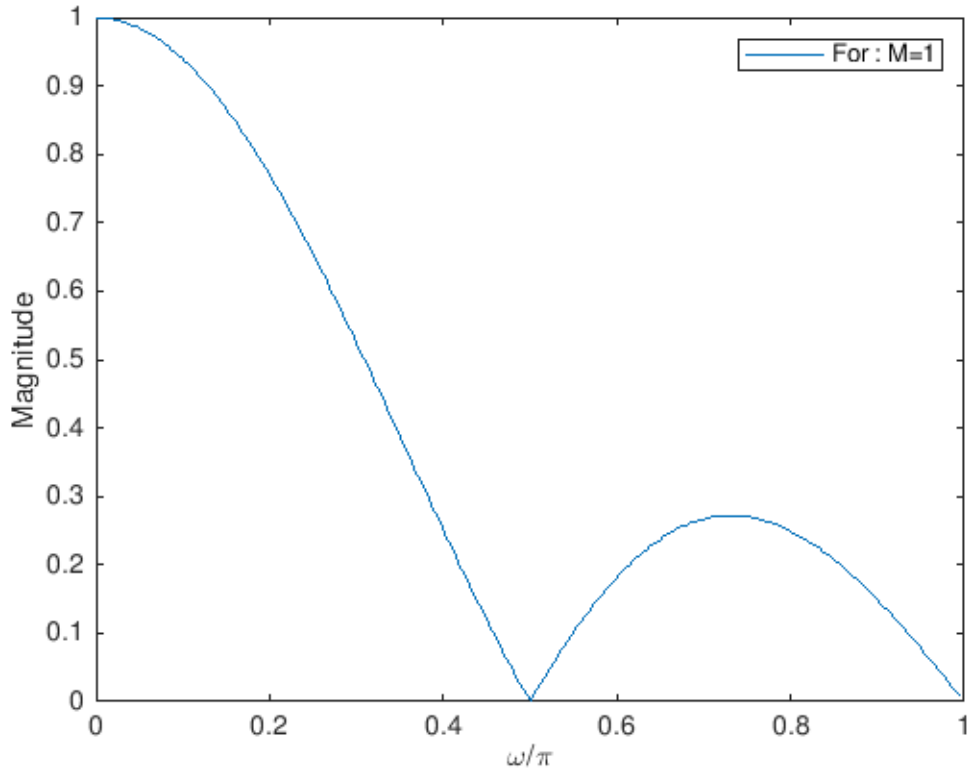
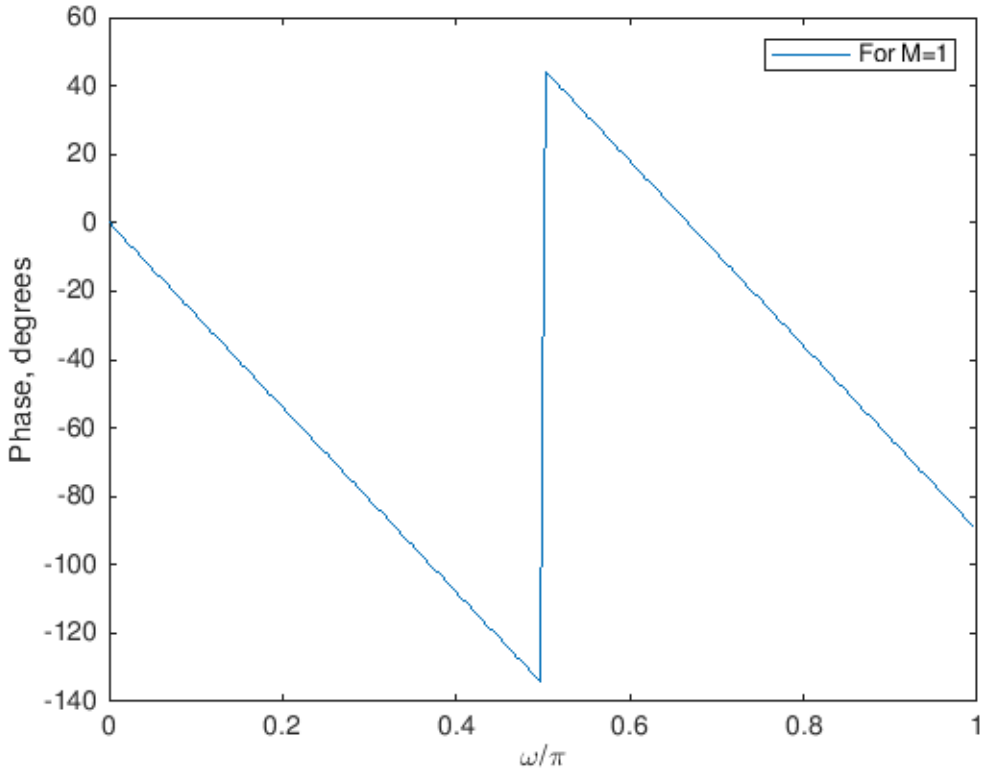
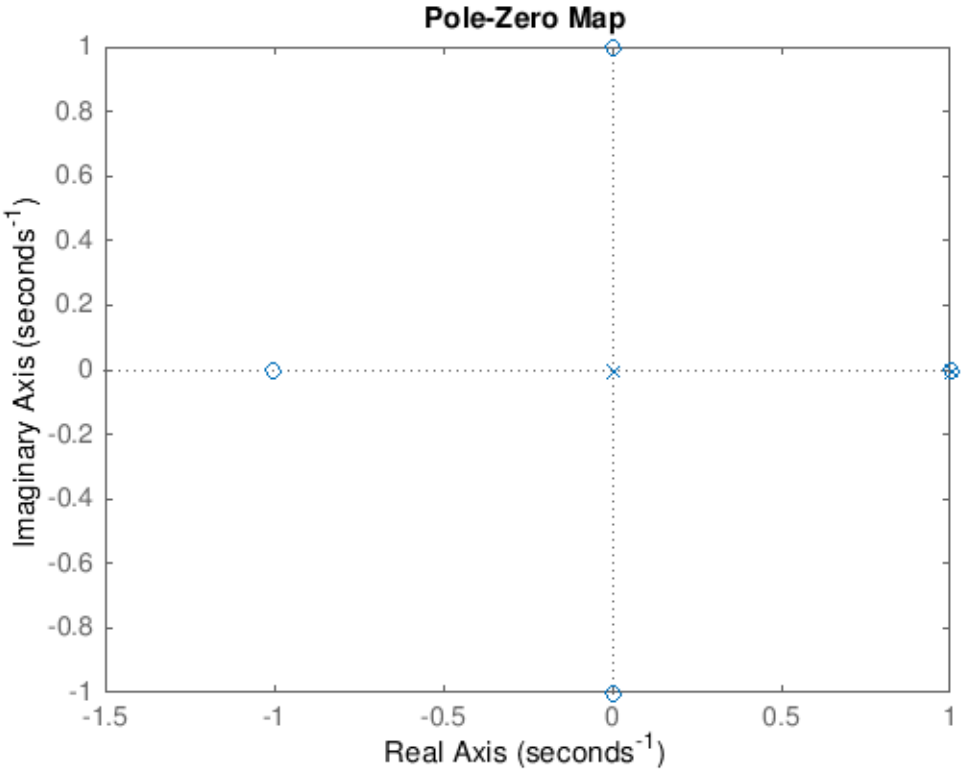
```
h1 = ones(1,4)/4;
[H1, w] = freqz(h1, 1, 256);
m1 = abs(H1);
plot(w/pi, m1);
ylabel("Magnitude");xlabel("\omega/\pi");
legend("For : M=1");
figure;
ph1 = angle(H1)*180/pi;
plot(w/pi, ph1);
ylabel("Phase, degrees");xlabel("\omega/\pi");
legend("For M=1");
h = (tf([1 0 0 0 -1], 4*[1, -1,0,0,0]))
[z, p, k] = tf2zp([1 0 0 0 -1], 4*[1, -1,0,0,0])
figure;pzplot(h);

x1 = [2,3,1,2,5,3,0,0];
X1 = fft(x1)

x2 = [1,4,6,8,1,2,3,0];
X2 = fft(x2)

X3 = X1.*X2

x3 = ifft(X3)
```

```
h =

     s^4 - 1
  -------------
  4 s^4 - 4 s^3

Continuous-time transfer function.


z =

  -1.0000 + 0.0000i
   0.0000 + 1.0000i
   0.0000 - 1.0000i
   1.0000 + 0.0000i


p =

     0
     0
     0
     1


k =
```

```
    0.2500


X1 =

  Columns 1 through 4

  16.0000 + 0.0000i  -4.4142 - 2.4142i   6.0000 - 4.0000i  -1.5858 -
 0.4142i

  Columns 5 through 8

   0.0000 + 0.0000i  -1.5858 + 0.4142i   6.0000 + 4.0000i  -4.4142 +
 2.4142i


X2 =

  Columns 1 through 4

  25.0000 + 0.0000i  -4.2426 -10.0711i  -7.0000 + 2.0000i   4.2426 -
 4.0711i

  Columns 5 through 8

  -3.0000 + 0.0000i   4.2426 + 4.0711i  -7.0000 - 2.0000i  -4.2426
 +10.0711i


X3 =

   1.0e+02 *

  Columns 1 through 4

   4.0000 + 0.0000i  -0.0559 + 0.5470i  -0.3400 + 0.4000i  -0.0841 +
 0.0470i

  Columns 5 through 8

   0.0000 + 0.0000i  -0.0841 - 0.0470i  -0.3400 - 0.4000i  -0.0559 -
 0.5470i


x3 =

    38    30    46    49    45    50    71    71
```


For : M=1
Magnitude
ω/π
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0.2
0.4
0.6
0.8


For M=1
Phase, degrees
ω/π
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
0.2
0.4
0.6
0.8
1



Published with MATLAB® R2018b