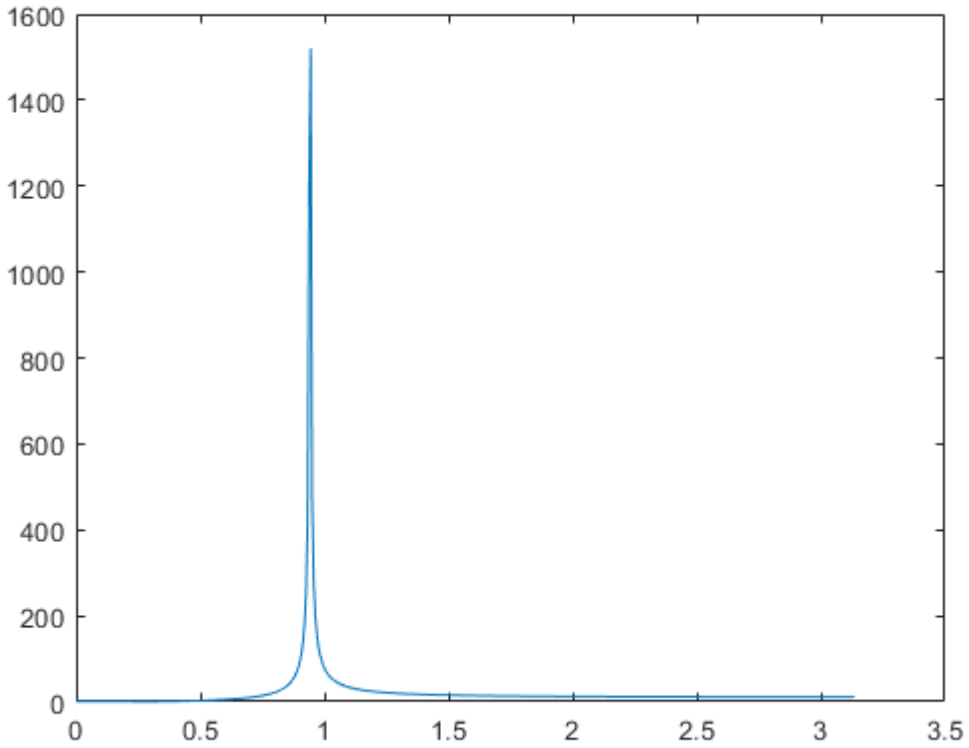
Contents

Part 1

```
% H(z) = Y(z)/X(z) = (0.1 - 0.1176z^-1 + 0.1*z^-2)/(1 - 1.7119z^-1 + 0.81z^-2)
```

Part 2

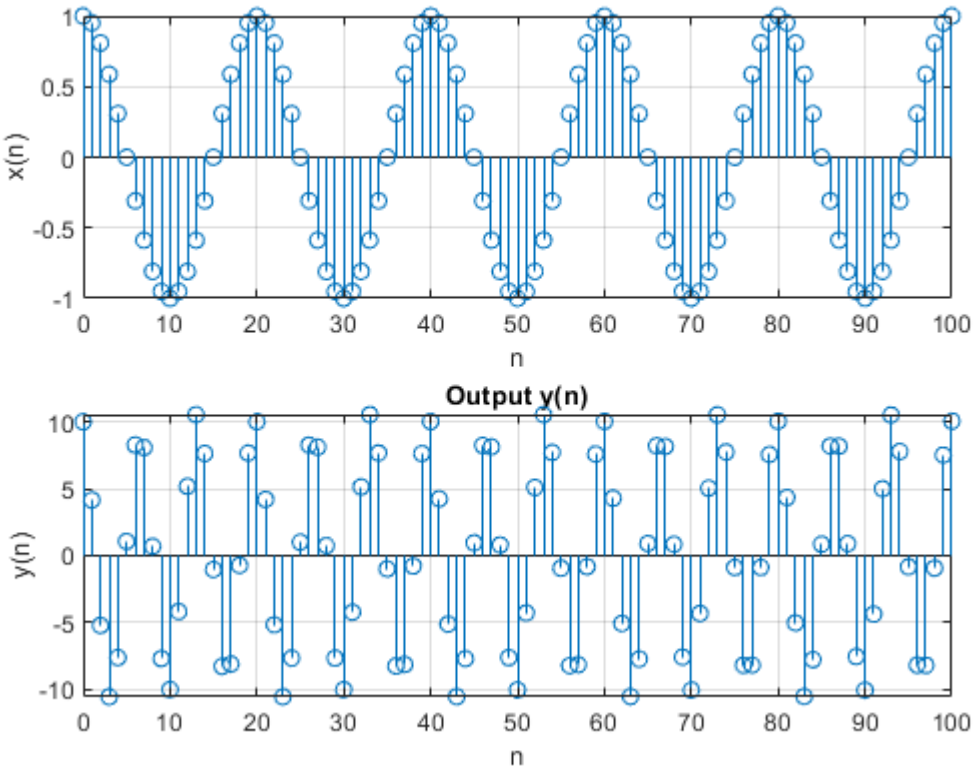
```
a=[0.1 -0.1176 0.1];

b=[1 -1.7119 0.81];



[H,w] = freqz(b,a);

figure;



title('frequency response using freqz command')

plot(w,abs(H));
```



Part 3

```
n = 0:100;

x = cos(0.1*pi*n).*(n>=0); % Input

figure;

title('Input x(n)')

subplot(2,1,1)

stem(n,x);

grid;

xlabel('n');

ylabel('x(n)');
```

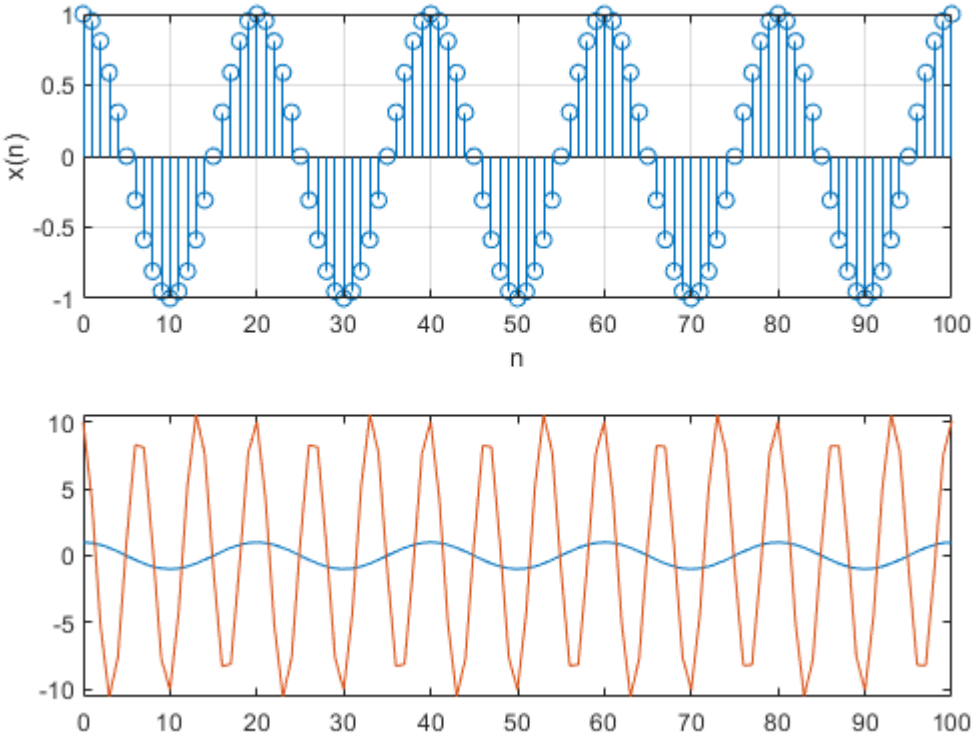
```
y = filter(b,a,x); %impulse response using filter command (output)

subplot(2,1,2)

stem(n,y);

grid;

title('Output y(n)')

xlabel('n');

ylabel('y(n)');
```



Part 5

```
a=[0.1 -0.1176 0.1];

b=[1 -1.7119 0.81];

n = 0:100;
```

```
x = cos(0.1*pi*n);

y = filter(b,a,x);



plot(n,x,n,y)
```

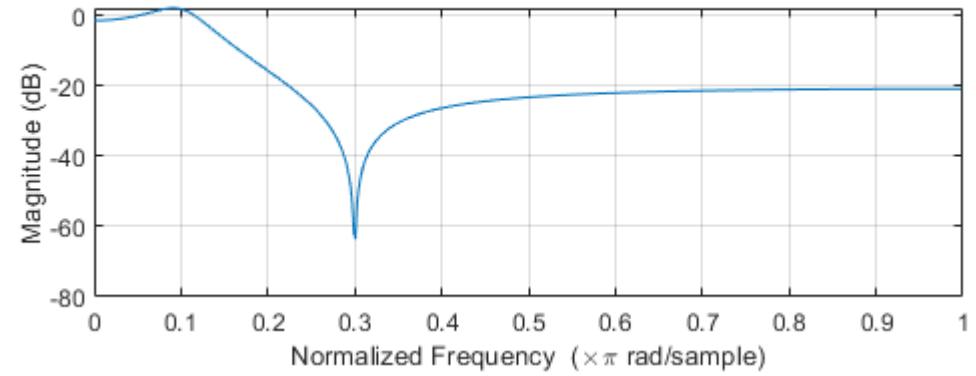


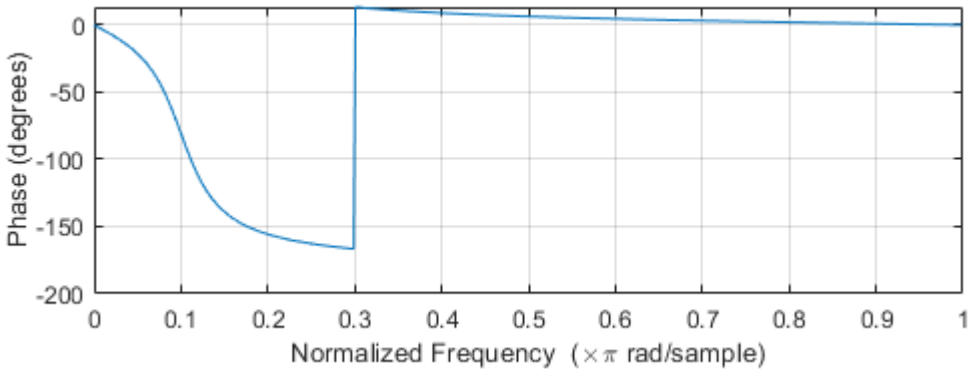
Part 6

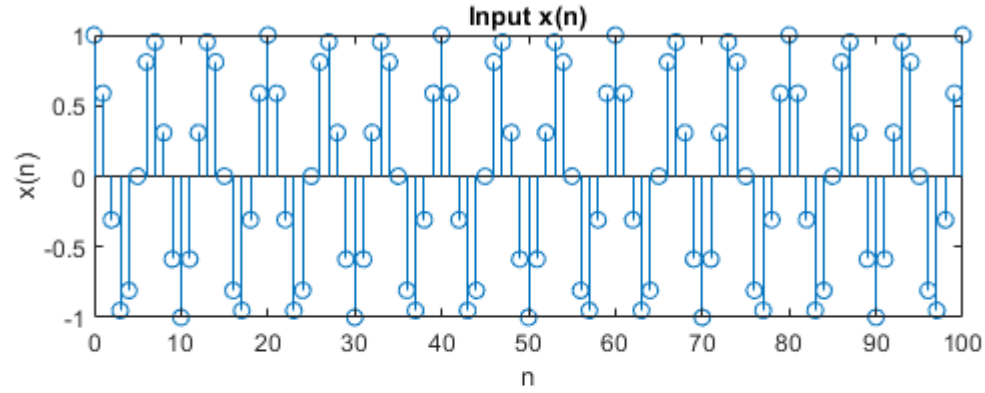
```
b=[0.1 -0.1176 0.1];



a=[1 -1.7119 0.81];



figure;
```

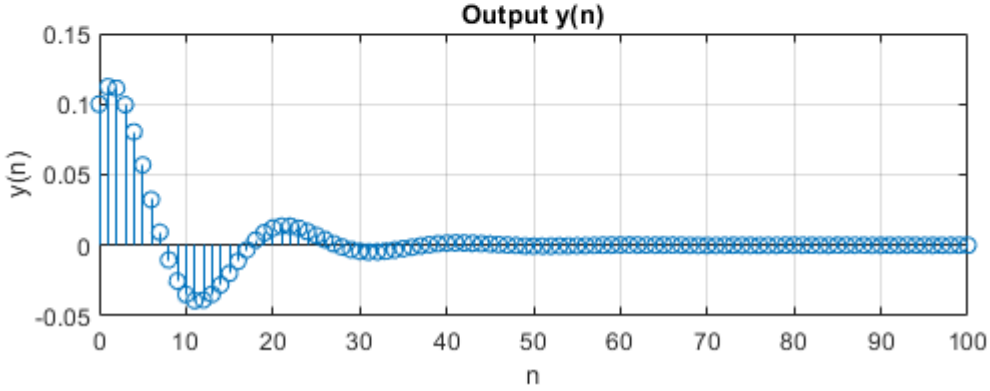
```
freqz(b,a)




n=0:100;


x=(cos(0.3*pi*n)).*(n>=0);


y=filter(b,a,x);


figure;


subplot(2,1,1)


stem(n,x);


title('Input x(n)')
xlabel('n');


ylabel('x(n)');




subplot(2,1,2)
```

```
stem(n,y);

grid;

title('Output y(n)')

xlabel('n');

ylabel('y(n)');
```





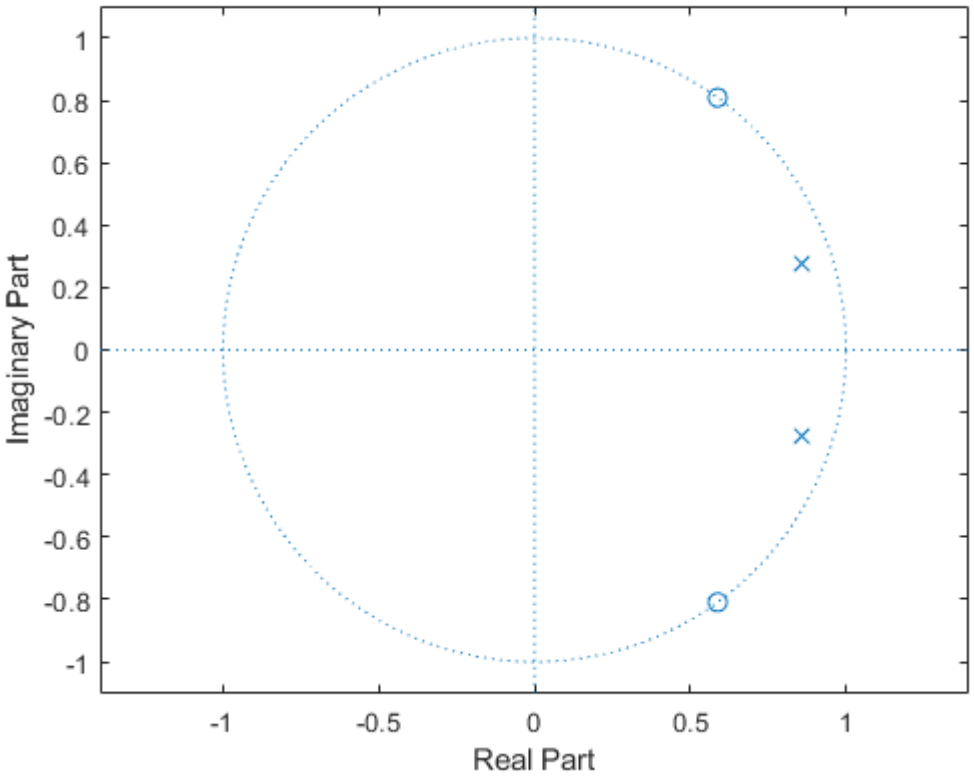




part 7

```
figure;
```

```
zplane(b,a)
```



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