3

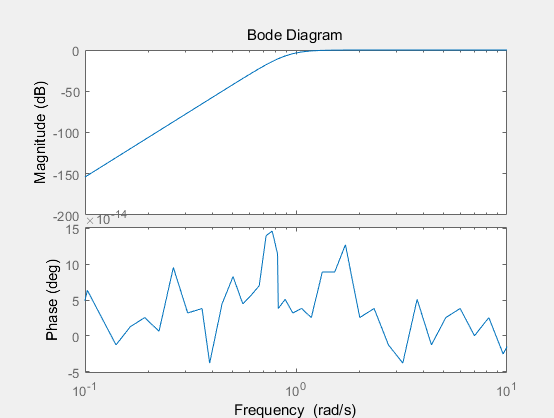
a)

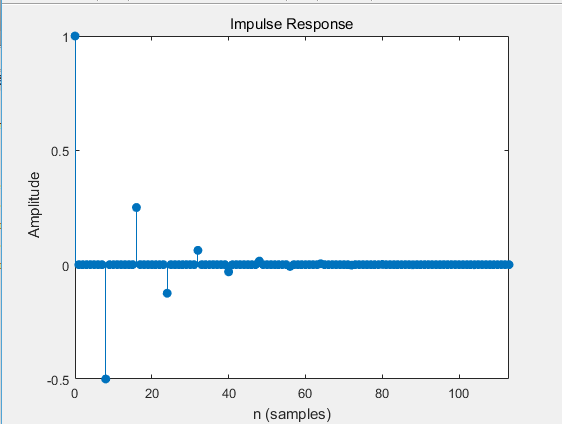
Consider, the impulse response coefficients are (). And , we use take the place of and get (). In order to get z transform, we need | | 1.

The frequency response

b)

Now . Assume





Matlab codes:

num=[1 0 0 0 0 0 0 0 0];

den=[1 0 0 0 0 0 0 0 0.5];

bode(num,den);

impz(num,den);

4

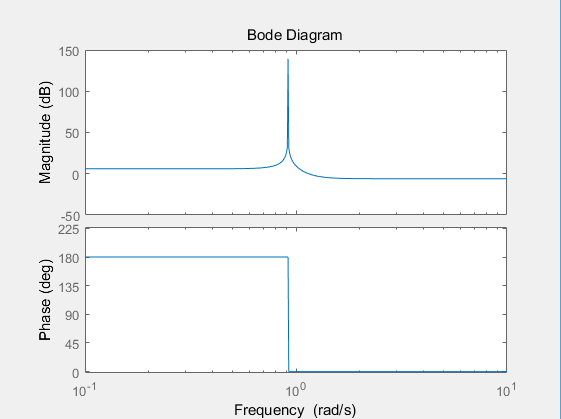
a)

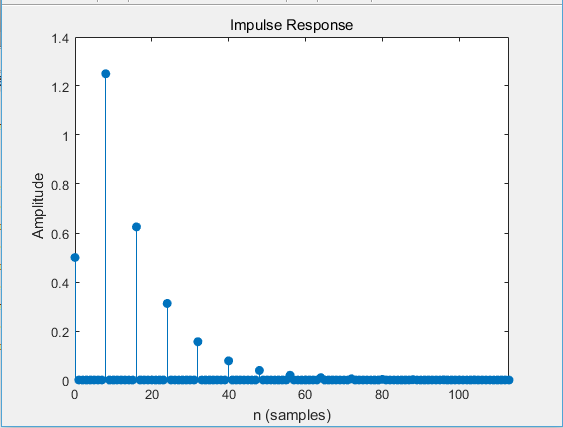
b)

When , we can easily get

c)

Now . Assume





Matlab codes:

num=[0.5 0 0 0 0 0 0 0 1];

den=[1 0 0 0 0 0 0 0 -0.5];

bode(num,den);

impz(num,den);