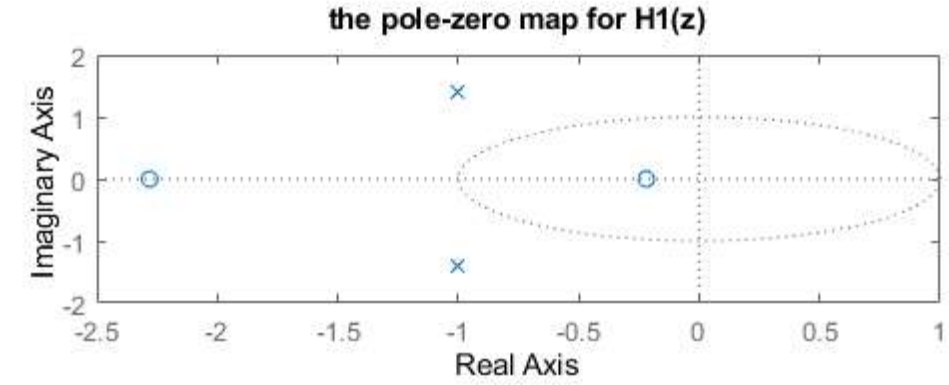
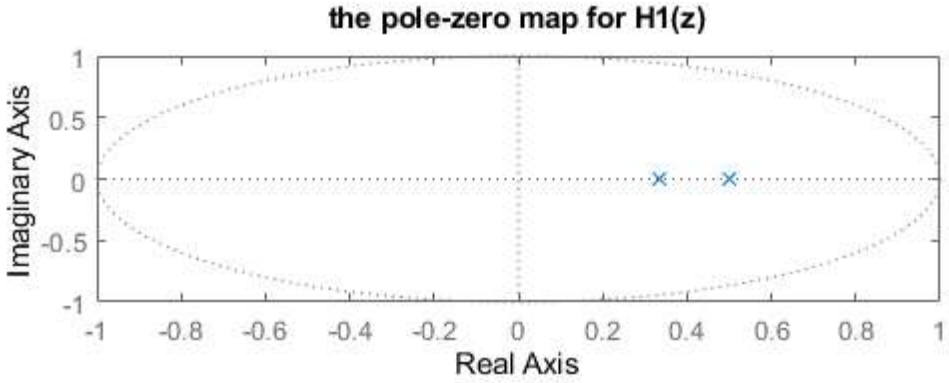
```
%Assignment 4
% Done by Mahmoud Yassin Mahmoud
% ID: 202113650
% Submitted To Dr. Wail A. Mousa
% Bism Allah and I will start with
%(Q1):
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
clc;
clear;
%.................................................
num1 = [2 5 1];% numerator coefficients for H1(z)
den1 = [1 2 3];% denominator coefficients for H1(z)

%-----------------------------------------------------------
num2 = [1];% numerator coefficients for H2(z)
den2 = [1 -5/6 1/6];% denominator coefficients for H2(z)

%-----------------------------------------------------------
H1 = tf(num1, den1, 0.1) % Transfer Function H1(Z)
sprintf('\n')
H2 = tf(num2, den2, 0.1) % Transfer Function H2(Z)

%-----------------------------------------------------------
% Calculation of poles and zeros for H1(z)
    poles1 = pole(H1)
    zeros1 = zero(H1)

%-----------------------------------------------------------
% Calculation of poles and zeros for H2(z)
     poles2 = pole(H2)
     zeros2 = zero(H2)

%-----------------------------------------------------------
%ploting
figure

 subplot(211)
   pzmap(H1)
   title('the pole-zero map for H1(z)')

 subplot(212)
   pzmap(H2)
   title('the pole-zero map for H1(z)')
```

```
H1 =

  2 z^2 + 5 z + 1
  ---------------
   z^2 + 2 z + 3

Sample time: 0.1 seconds
Discrete-time transfer function.


ans =

    '
```

```
     '


H2 =

             1
  ----------------------
  z^2 - 0.8333 z + 0.1667

Sample time: 0.1 seconds
Discrete-time transfer function.


poles1 =

  -1.0000 + 1.4142i
  -1.0000 - 1.4142i


zeros1 =

   -2.2808
   -0.2192


poles2 =

    0.5000
    0.3333


zeros2 =

  0×1 empty double column vector
```





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