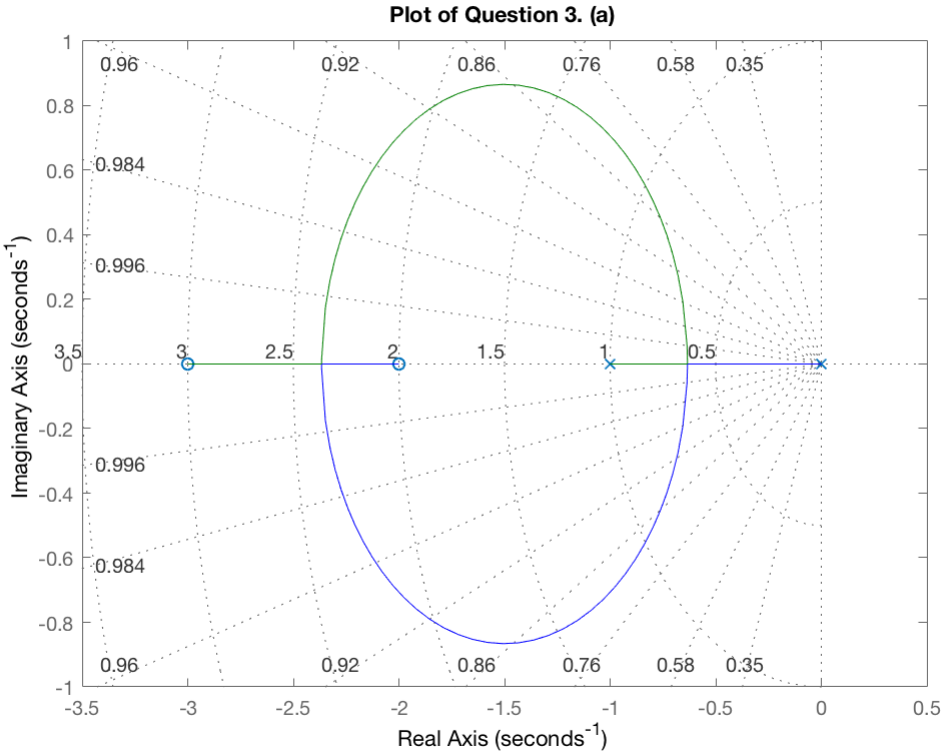
```
%Student Name: Nayem Alam
%Student ID: 260743549

%Assignment 2 -- Question 3

%a)

z = [-2 -3];
p = [0 -1];
k = 1;
G1 = zpk(z,p,k)
```

```
G1 =

  (s+2) (s+3)
  -----------
    s (s+1)

Continuous-time zero/pole/gain model.
```

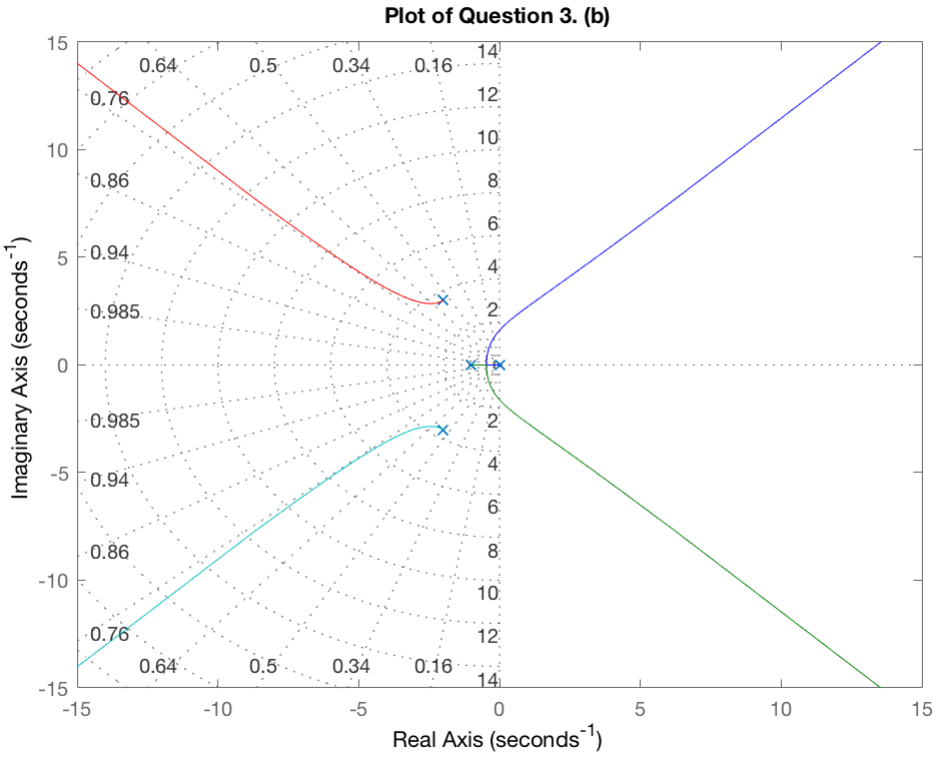
```
figure(1)
hold on;
rlocus(G1)
grid on;
title(sprintf('Plot of Question 3. (a)'));
```



```
%b)

z = [];
p = [0 -1 -2+3j -2-3j];
k = 1;
G2 = zpk(z,p,k)
```

```
G2 =

            1
  ------------------------
  s (s+1) (s^2 + 4s + 13)

Continuous-time zero/pole/gain model.
```

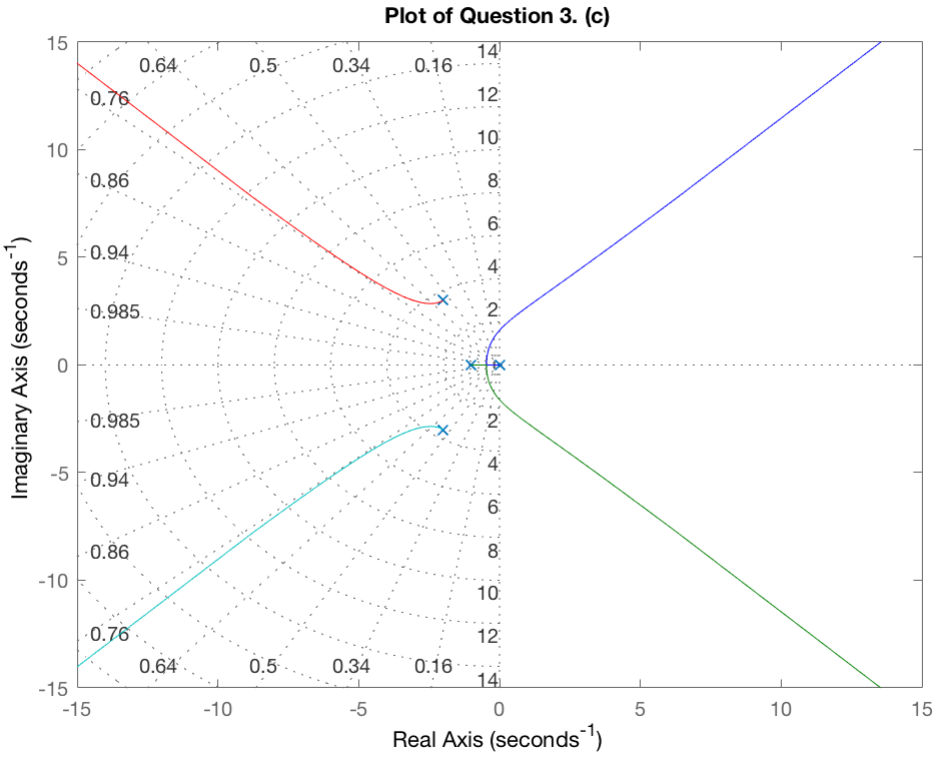
```
figure(2)
hold on;
rlocus(G2)
grid on;
title('Plot of Question 3. (b)')
```




```
%c) -- same thing as plot b)

z = [];
p = [0 -1 -2+3j -2-3j];
k = 1;
G3 = zpk(z,p,k)
```

```
G3 =

            1
  ------------------------
  s (s+1) (s^2 + 4s + 13)

Continuous-time zero/pole/gain model.
```

```
figure(3)
hold on;
rlocus(G3)
grid on;
title('Plot of Question 3. (c)')
```

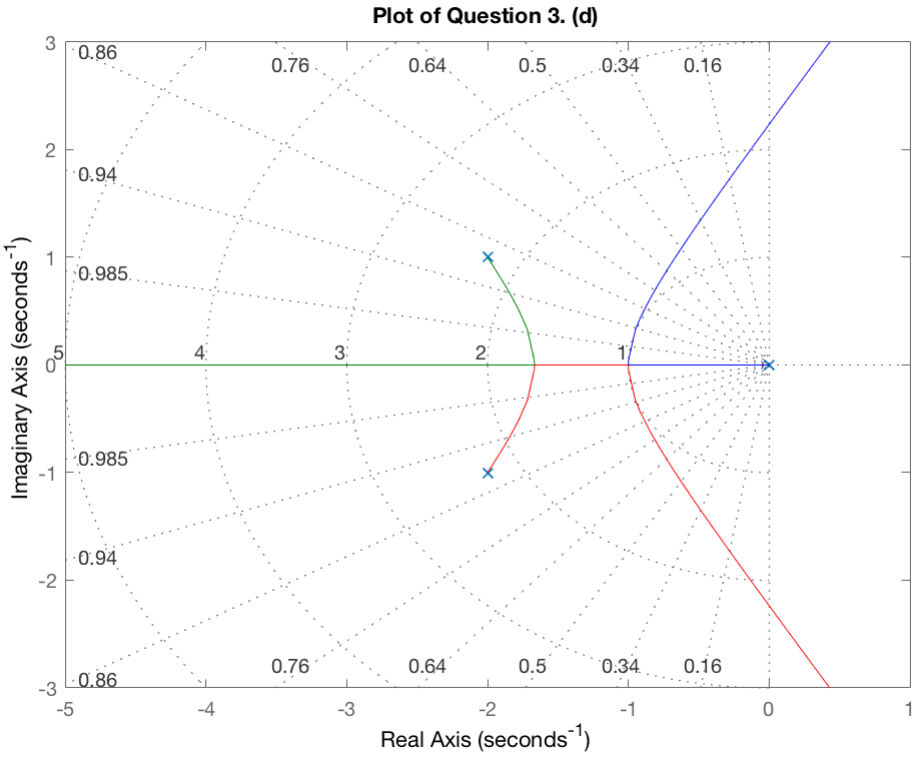



```
%d)

z = [];
p = [0 -2+j -2-j];
k = 1;
G4 = zpk(z,p,k)
```

```
G4 =

        1
  ----------------
  s (s^2 + 4s + 5)
```

```
Continuous-time zero/pole/gain model.
```

```
figure(4)
hold on;
rlocus(G4)
grid on;
title(sprintf('Plot of Question 3. (d)'))
```




```
%e)

z = [];
p = [1 -2+sqrt(3)*j -2-sqrt(3)*j];
k = 1;
G5 = zpk(z,p,k)
```

```
G5 =

           1
  --------------------
  (s-1) (s^2 + 4s + 7)

Continuous-time zero/pole/gain model.
```

```
figure(5)
hold on;
rlocus(G5)
grid on;
```

```
title(sprintf('Plot of Question 3. (e)'))
```