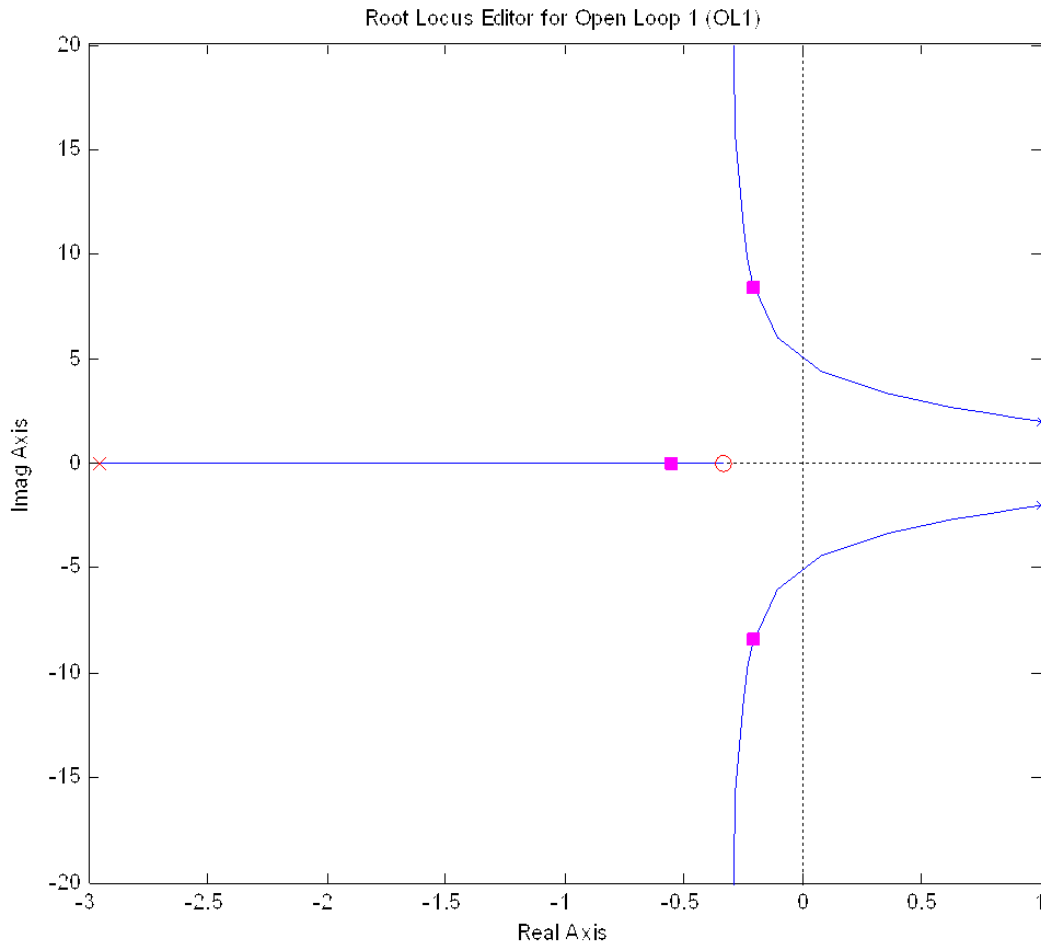


ECE-320, Quiz #5

Problems 1-3 refer to the following root locus plot for a unity feedback system with a plant and a controller.



1) Based on this root locus plot, the best estimate of the poles of the closed loop system are

- a) $-0.3+j7, -0.3-j7, -0.6$ b) $1+j2, 1-j2, \text{ and } -3$

2) Is this a type one system?

- a) yes b) no

3) Is this a stable system?

- a) yes b) no

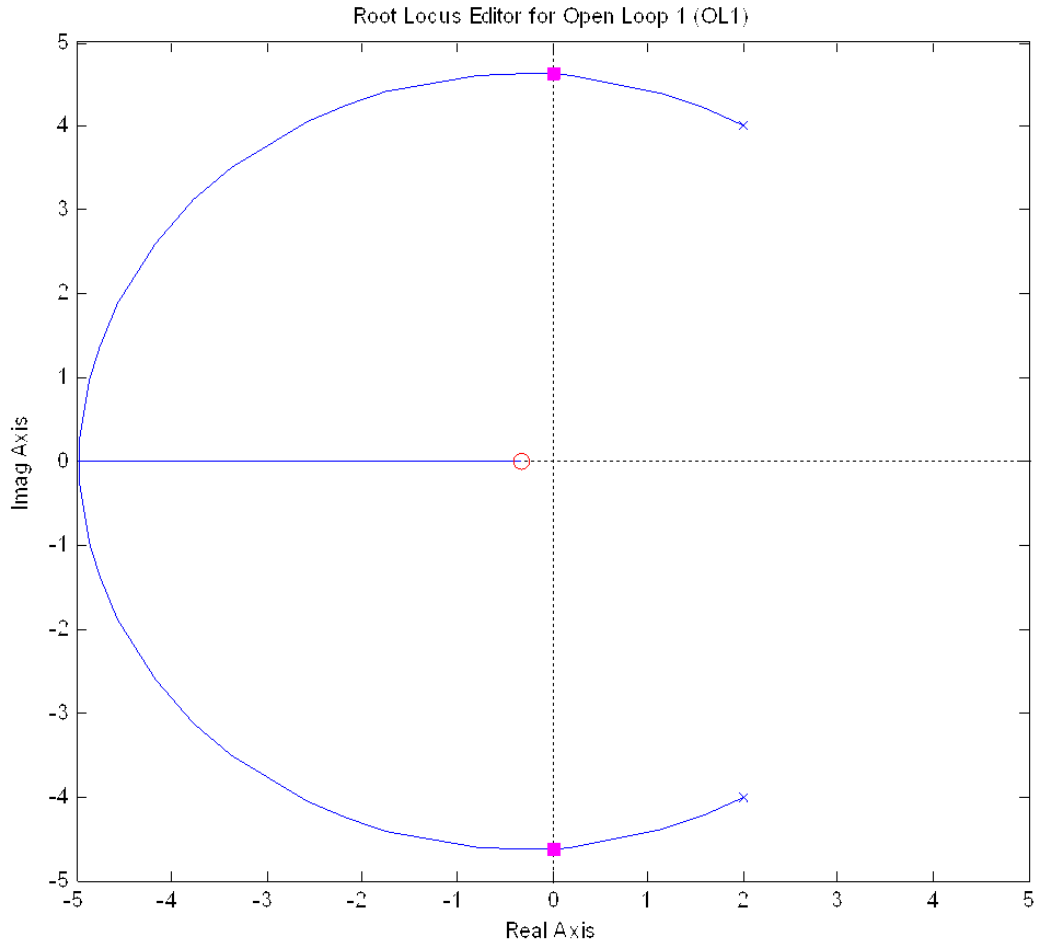
Name _____

Mailbox _____

4) Consider the following root locus plot for a plant and controller in a unity feedback configuration.

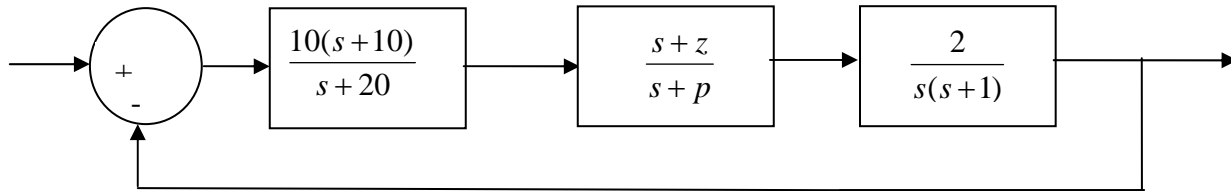
If we want the system to be stable, should we

- a) increase the gain b) decrease the gain c) do nothing



Name _____ Mailbox _____

5) Assume we are adding a lag compensator to change the steady state error for a ramp input, as shown below



If we want the **steady state error** for a unit ramp input to be 0.001 and we choose $z = 0.1$, what should p be?

- a) 1 b) 0.1 c) 0.01 d) 0.001

6) With the lag compensator in the system (as shown in problem 5) do we expect the **settling time** of the system to

- a) increase b) decrease c) remain the same