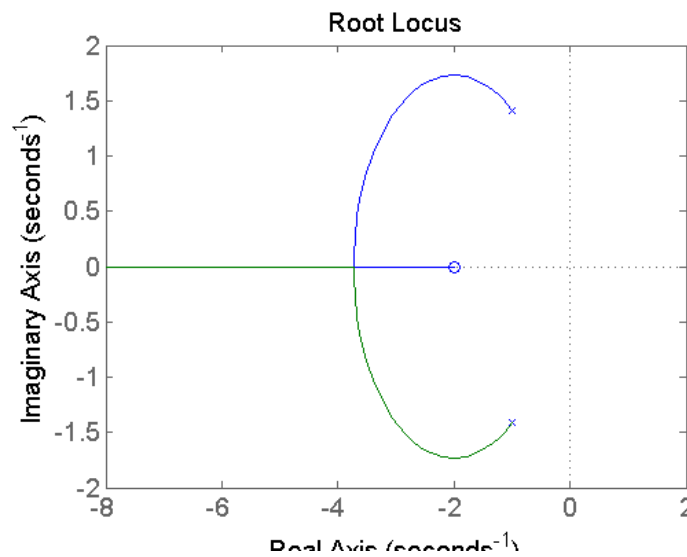# Quiz #6

ENGR 4220/5220: Control Systems

Professor Hill

University of Detroit Mercy, Summer 2013

Select the best answer to each of the following multiple choice questions.

1. (2 point) Consider the given root locus for a system as K is varied from 0 to ∞. For this system, is there a value of K which will achieve a settling time of 0.5 seconds? You may assume the system's closed-loop zero has negligible effect.

Root Locus

    (a) Yes.

    (b) No, because a pole can't be placed with desired σ.

    (c) No, because dominant pole can't be placed in the desired location.

    (d) Can't tell because the system is third order.

2. (2 point) A root locus is drawn for a given system as K is varied from 0 to ∞. If that root locus does not pass through a desired set of pole locations, how should you change your controller to meet your requirements?

    (a) Change the controller gain K.

    (b) Add a pole via the controller.

    (c) Add a zero via the controller.

    (d) Add a pole and/or a zero via the controller.