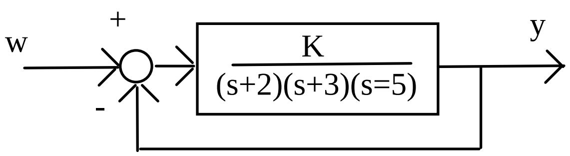
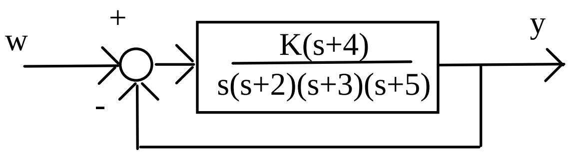
0.

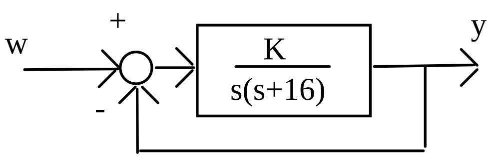
1. a) Use Routh-Hurwitz analysis to find the range on K for which the following classical control system is stable:



b) Repeat part a) using the following system:



c) Sketch the root locus of



(Hint: find an expression for the two poles, then substitute in various values of K from near zero to very large)

d) Use the angle condition to determine if the following points lie on your root-locus in part c):

i) s=-4+j0 ii) s=4+j0 iii) s=-8+j2 iv) s=-8.5+j2

e) For those points which lie on the root locus in part d), use the magnitude condition to find the value of K which produces these closed-loop system poles