

## Solution To Quiz 8

Given the system with

$$G(s) H(s) = \frac{K (s-8) (s-11)}{(s+5) (s+10)}$$

Open loop poles at -5, -10

Open loop zeros at +8, +11

The rules (as shown on your sheet) say:

Rule 1 - There are 2 branches (since there are 2 poles and 2 zeros)

Rule 2 - The root locus is symmetric about the real axis. The top half should be a mirror of the bottom half.

Rule 3 - The root locus begins at poles and ends at zeros. In other words, there must be a path that starts at the poles and ends at the zeros.

Rule 4 - The root locus exists on the real axis when there are an odd number of poles/zeros to the right. In this case, the locus is on the axis between +8 & +11 and between -5 & -10.

Rule 5 - Doesn't apply. There are no zeros at infinity since there are 2 poles and 2 zeros (since  $2=2$ ).

