Sketch the root locus with K as variable parameter

$$G(s) = \frac{K(s+1)}{s^2}$$

open loop poles

Step 1 $s = 0, 0$ terminates at $s = -1$ and $k = \infty$.

Since the no. of open loop poles are 2, the number of root locus are 2.

Step 2: Break away point

$$\frac{d\,G(s)}{ds} = 0$$

or $s = -2$ is the breakaway point

Step 3: Intersection point of asymptotes

$$\sigma = \frac{\Sigma p - \Sigma z}{p - z} = \frac{(0+0)-(-1)}{2-1}$$

$$\sigma = 1$$

- Angle of asymptote

$$\theta = \frac{(2m+1)\times 180}{p-2} \qquad m = 0$$

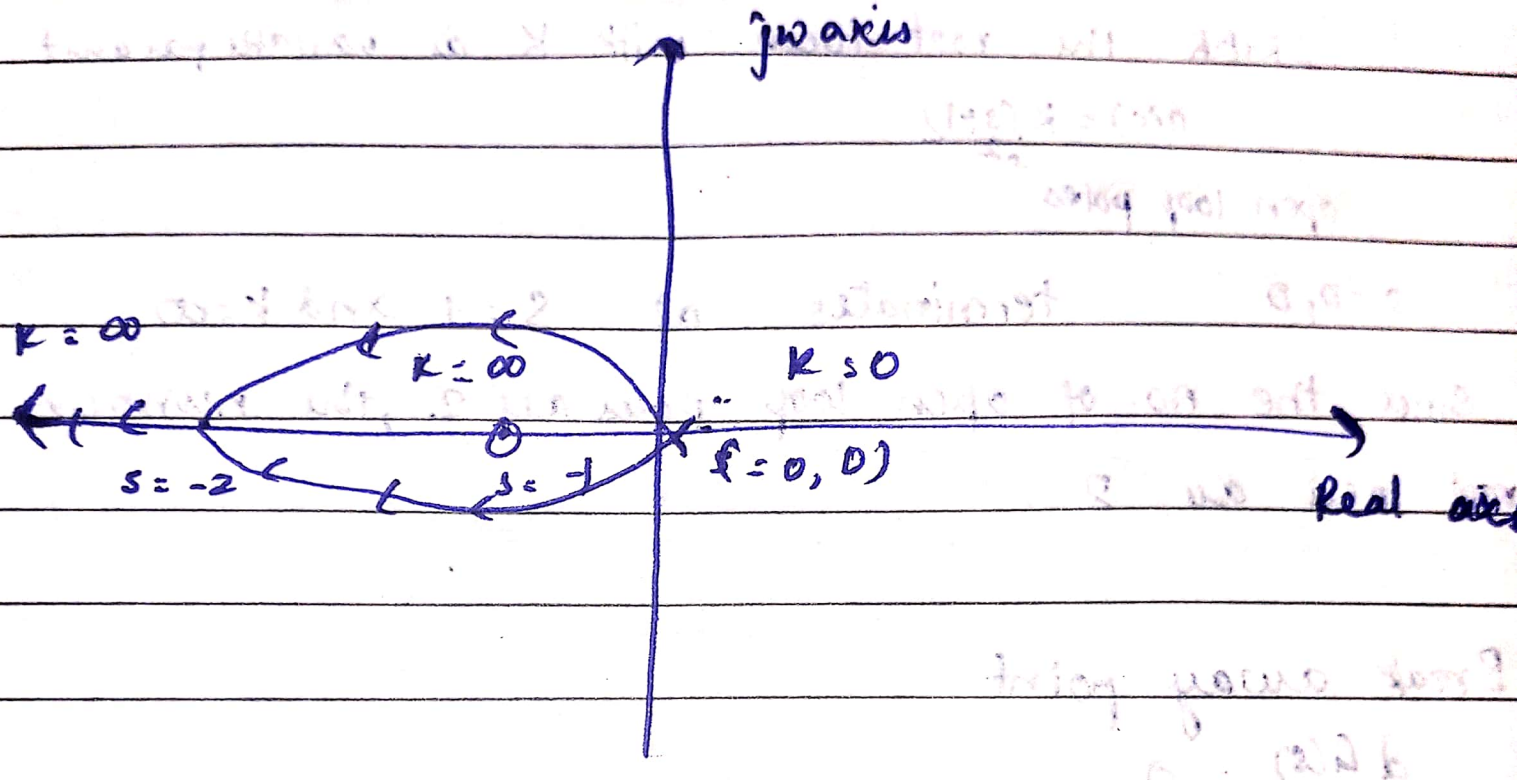
$$\theta = \frac{180}{2-1} = 180^\circ$$

intersection points of asymptotes $\sigma = \frac{\Sigma p - \Sigma z}{p-2}$ $K = 0, 1, 2 \ldots$

Angle of asymptotes

$$\frac{(2m+1)\times 180}{p-2}$$

$m = 0, 1, 2 \ldots (p-2) - 1$



Root Locus.