

Q.1. Write a function that takes ~~in~~ a Transfer function as an input and displays Popov Plot.

a) Draw Popov plot for

$$(i) \quad \frac{1}{s(s+1)(s+2)(s+3)} = G(s)$$

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

$$(iii) \quad \frac{(s+1)}{(s+2)(s+3)(s+4)} = G(s)$$

b) Using Popov plot give maximum Sector that can ~~keep~~ keep the feedback ~~system~~ ^{globally asymptotically} stable.
interconnection.

Q.2 For Transfer function in Q.1 (a) give maximum Sector that can keep the feedback interconnection, globally exponentially stable. Use Circle Criterion and Nyquist plot to arrive at your answer.

Feedback interconnection.

