



Control Automático
EM-720

Tarea #11

Profesor:
Erick Salas Chaverri

Estudiante:
Paulo Corrales Soto
(Ing. Electromecánica)

Martes Noche
(6pm - 9pm)

Segundo Cuatrimestre 2018

Tarea # 11

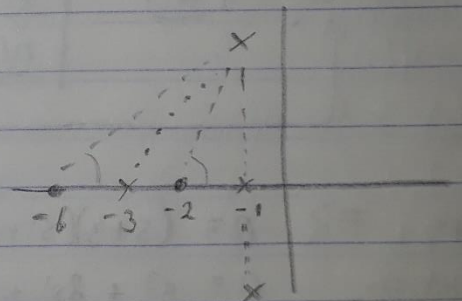
$$G(s)H(s) = \frac{(s^2 + 8s + 12)}{(s+3)(s^2 + 2s + 5)}$$

; centroide
ángulo de salida

$$\begin{aligned} n &= 3 & \text{polos} \Rightarrow p_1 &= -3 & \text{ceros} \Rightarrow z_1 &= -2 \\ q &= 2 & p_2 &= -1+j & z_2 &= -6 \\ & & p_3 &= -1-j & & \end{aligned}$$

$$\begin{aligned} \frac{\sum p_i - \sum z_i}{n - q} &= \frac{[-3 - 1 + j - 1 - j] - [-2 - 6]}{3 - 2} \\ &= \frac{-5 - (-8)}{1} \\ &= 3 \end{aligned}$$

centroide = 3



$$\sum \phi_{z_i} = 45^\circ + 11,31^\circ$$

$$\sum \phi_{p_i} = 90^\circ + 26,56^\circ$$

$$\phi_{px} = 180^\circ + \sum_{i=1}^q \phi_{z_i} - \sum_{i=1}^n \phi_{p_i}$$

$$= 180^\circ + [45^\circ + 11,31^\circ] - [90^\circ + 26,56^\circ]$$

$$= 119,75^\circ$$