UNIVERSIDAD FIDELITAS

Escuela de Ingeniería Eléctrica

Control automático

Angulo-salida-lugar-de-las-raíces

Tarea#11

Realizado por:

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Profesor:

Erick Salas

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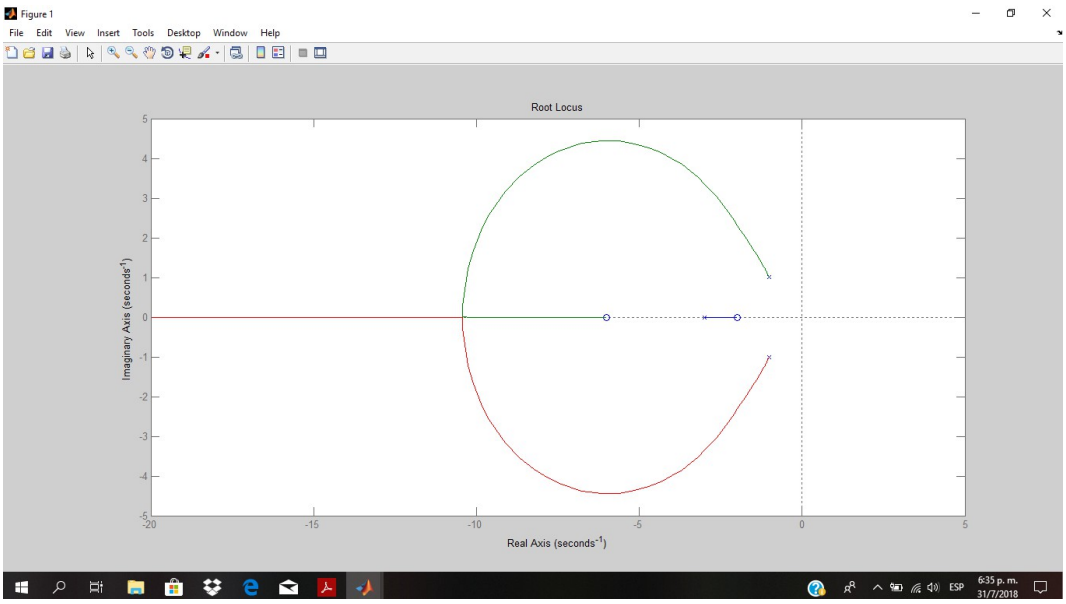
Fecha: 1 de agsto del 2018

Parte en matlab

```
>> num=[1 8 12]

num =

     1     8    12

>> den=[1 5 8 6]

den =

     1     5     8     6

>> G=tf(num,den)

G =

     s^2 + 8 s + 12

  ----------------------

  s^3 + 5 s^2 + 8 s + 6

Continuous-time transfer function.

>> rlocus(G)
```



Parte a mano

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

$s^3+2s^2+2s+3s^2+6s+6$

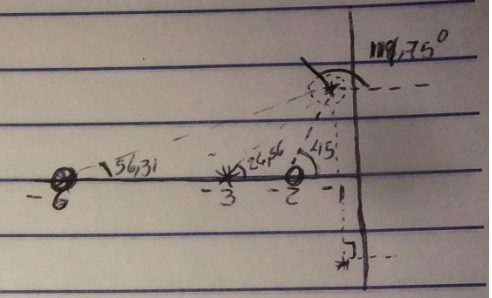
$\sum_{i=1}^{n} P_i = -5$ $\qquad \sum_{i=1}^{n} z_i = -8$

$\text{centroide} = \frac{-5--8}{1} = 3$

$P_1 = -3$ $\qquad z_1 = -2$

$P_2 = -1+j$ $\qquad z_2 = -6$

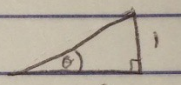
$P_3 = -1-j$



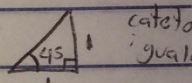
$\phi_{Px} = 180^\circ + \sum_{i=1}^{z} \phi z_i - \sum_{i=1, i\neq x}^{n} \phi p_i$

$\phi_{Px} = 180^\circ + 56,31^\circ - 116,56^\circ = 119,75^\circ$

$\sum \phi z = 45 + 11,31 = 56,31^\circ$

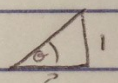


$\theta = 11,31^\circ$



cateto igual

$\sum \phi p = 90 + 26,56 = 116,56^\circ$



$\theta = 26,56^\circ$