Isidoro Eduardo Reyes D. | 15/08/2020

Actividad 1

a) $\frac{1}{s^5+s^4+10s^3+72s^2+152s+240}$

s^5	1	10	152
s^4	1	72	240
s^3	-62	118.67	∅
s^2	-73.9	-240	∅
s^1	-320.02	∅	∅
s^0	-240	∅	∅

$\frac{(10)-1(72)}{1} = -62$ $\quad \frac{72(152)-10(240)}{72} = 118.67$

$\frac{-(2(72)-1(118.67))}{-62} = 73.9$ $\quad \frac{-62(240)-0}{-62} = -240$

$\frac{-73.9(118.67)-(-62)(-240)}{-73.9} = 320.02$

$\frac{(-320.02)(-240)-(-73.9)(0)}{-320.02} = -240$

b) $\frac{1}{s^4+2s^3+4s^2+8s+5}$

s^4	1	4	5
s^3	2	8	∅
s^2	ε	5	∅
s^1	$\frac{8\varepsilon-10}{\varepsilon}$	∅	∅
s^0	5	∅	∅

$\frac{2(4)-1(8)}{2} = ∅$ $\quad \frac{2(5)-1(10)}{2} = 5$

$\frac{0-(2\varepsilon)5}{\varepsilon} = ∅$ ← Críticamente estable

$\frac{8\varepsilon-10}{\varepsilon}$ $\quad \frac{-30}{8}$

$d = \frac{8}{\frac{10}{\varepsilon}} = \frac{8\varepsilon}{10} = 5$

c) $\frac{1}{s^4+2s^3+11s^2+18s+18}$

s^4	1	11	18
s^3	2	18	∅
s^2	2	18	∅
s^1	ε	∅	∅
s^0	18ε	∅	∅

$\frac{2(11)-18(1)}{2} = 2$ $\quad \frac{2(18)-0}{2} = 18$

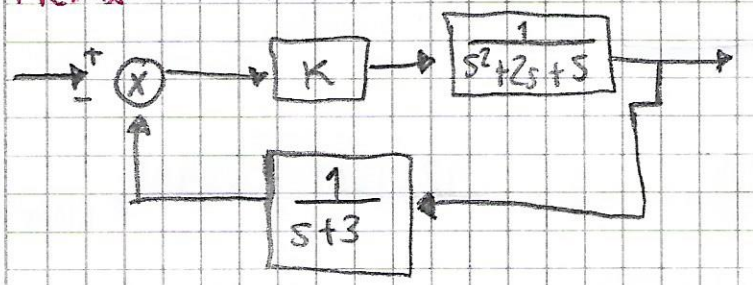
$\frac{2(18)-2(18)}{2} = 0$

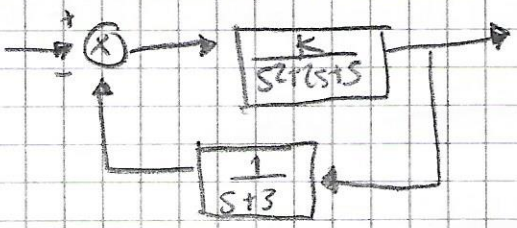
$\frac{18\varepsilon-(10)}{\varepsilon} = 18\varepsilon$

Isidoro Eduard Perez Sedano

15/03/20

Act. 2

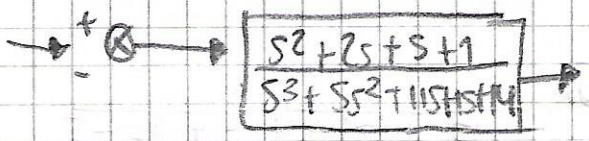




$$\frac{K}{s^2+2s+5}$$

$$1+\frac{K}{s^2+2s+5}\left(\frac{1}{s+3}\right)$$

$$2+\frac{\frac{K}{s^2+2s+5}}{\frac{K}{s^3+5s^2+11s+15}}$$



s^3	1	11	K
s^2	5	15	0
s^1	8	K	0
s^0	15.5K	0	0

$$\frac{5s-15}{5}=8 \qquad \frac{5K}{5}=K$$

$$\frac{125-5K}{8}=\frac{125-61.5}{5K}=11.5K$$

$0<K<25$

$125-5K>0$

$125>5K$

$25K = 1,570$