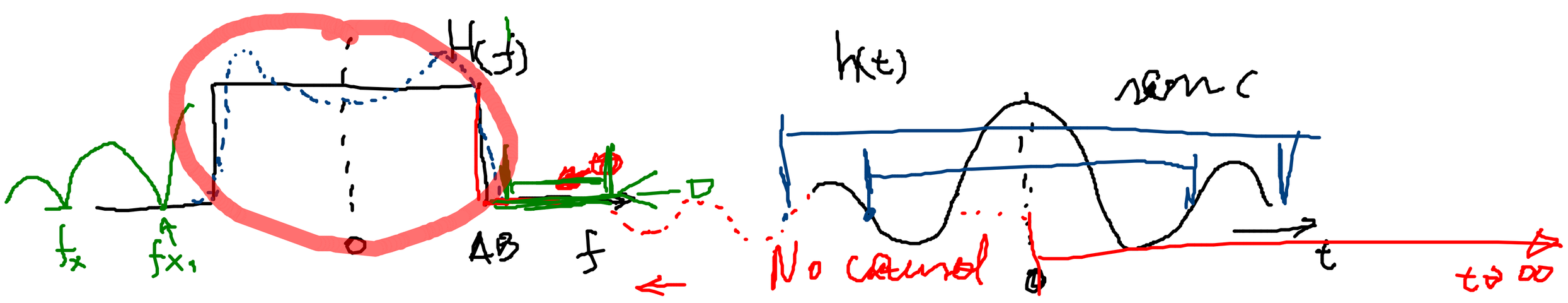
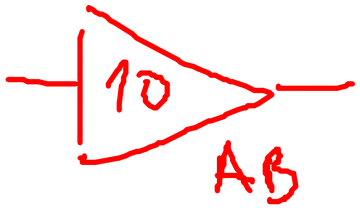


Paley - Wiener :

$$\int_{-\infty}^{\infty} \frac{\ln |H(f)|}{1 + (2\pi f)^2} \cdot df < \infty$$

+

$$\int_{-\infty}^{\infty} |H(f)|^2 \cdot df < \infty$$

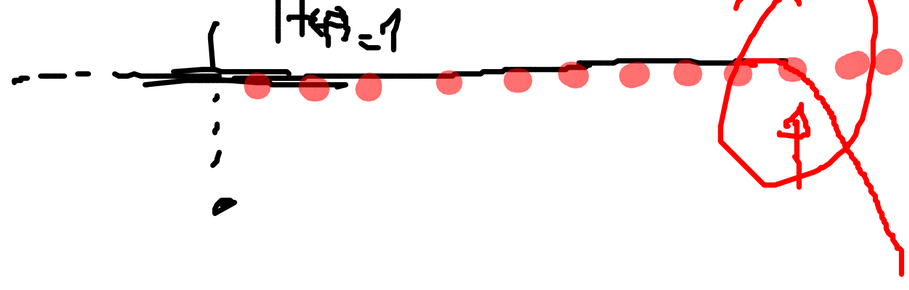


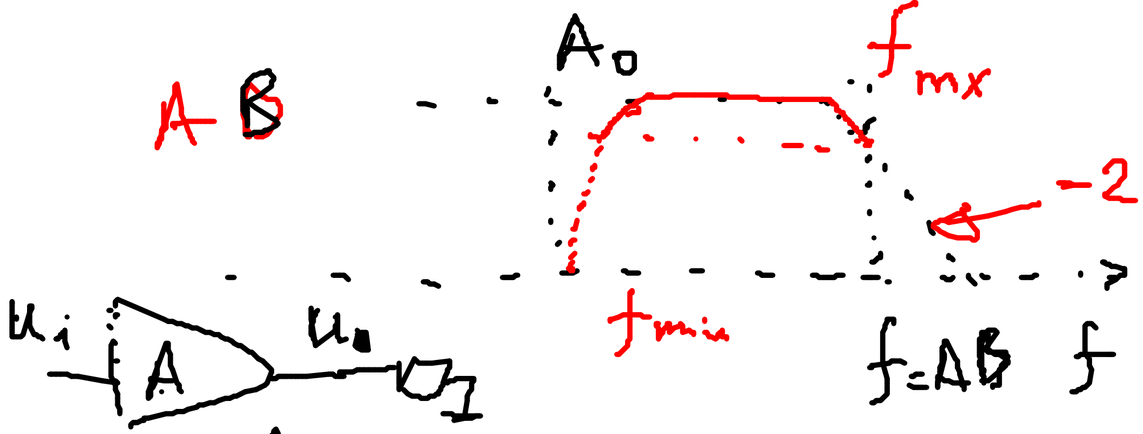
Digital

Finita - FIR

Infinita - IIR

Fácil





A_B 3dB

$|A(f_{AB})| = 0,707$

$A(f) = A_0 \frac{D(f)}{N(f)}$

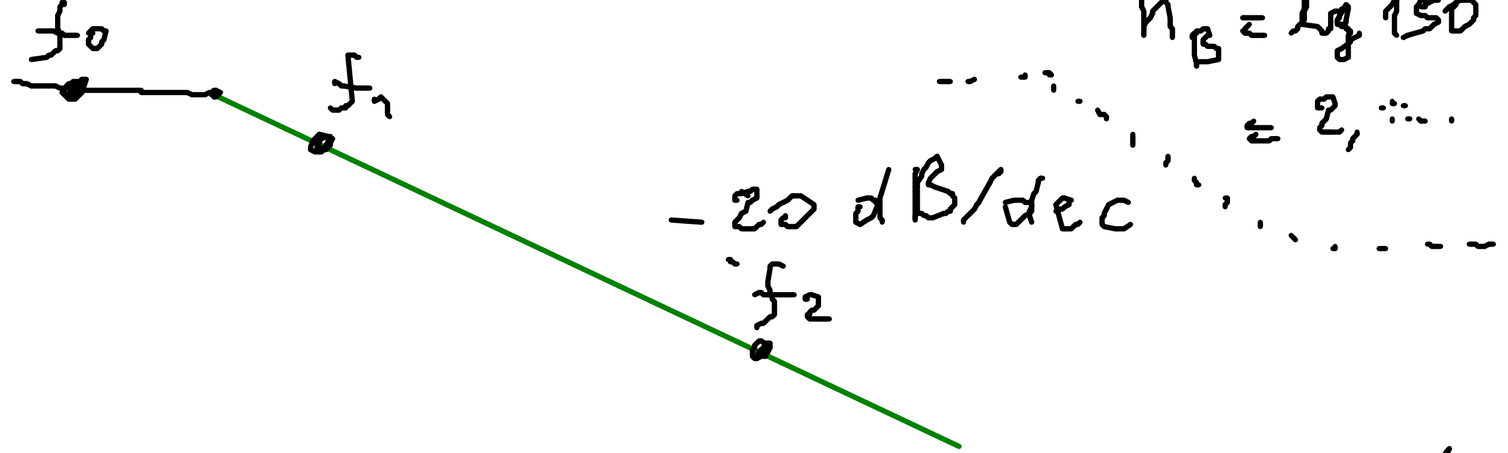
$P_0 = \frac{U_0^2}{R_{R_1}}$ $C = \frac{P_0}{1 \omega} = U_0$ (2)

Potencia = 0,5

h = 150cm

$h_B = Lg\ 150$

$= 2, \ldots$



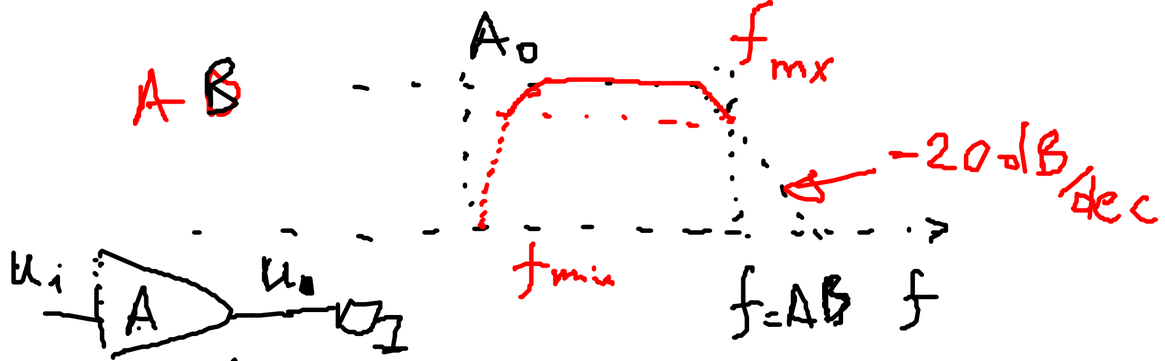
h	Pendiente
1	-20 dB/dec
2	-40 dB/dec

decibel $\underbrace{C_B\ Bel}_{} = X$; $C = \frac{2P_1}{P_{ref}} = \underbrace{10^{2X}}_{}$

$C = 10 = 10^1$

$C_B = 1$

$C_{dB} = 2.10. \log. C$



A_{AB} 3dB

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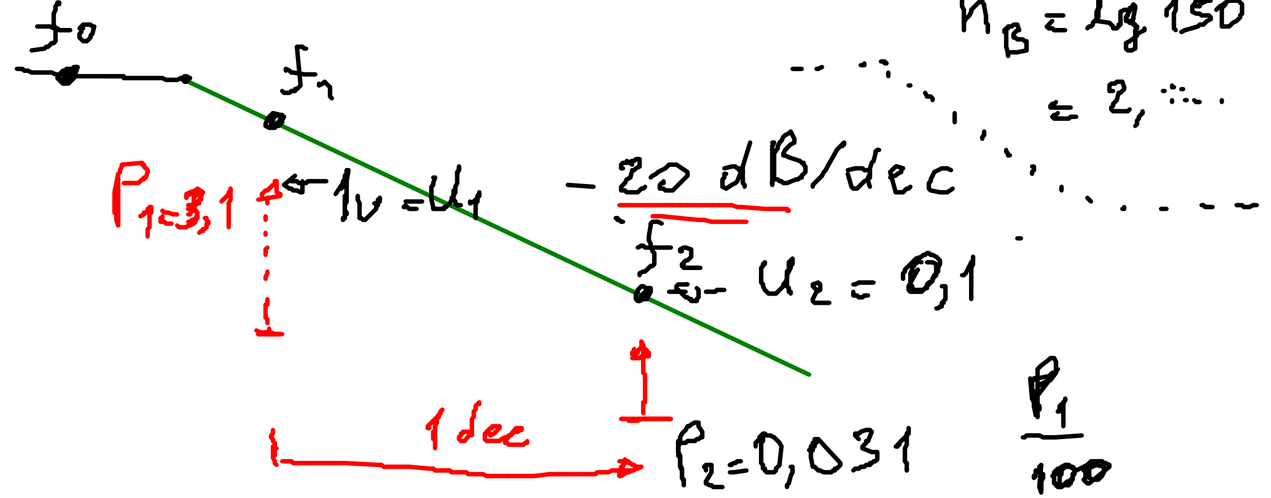
h	Pendiente
1	- 20 dB/dec
2	- 40 dB/dec



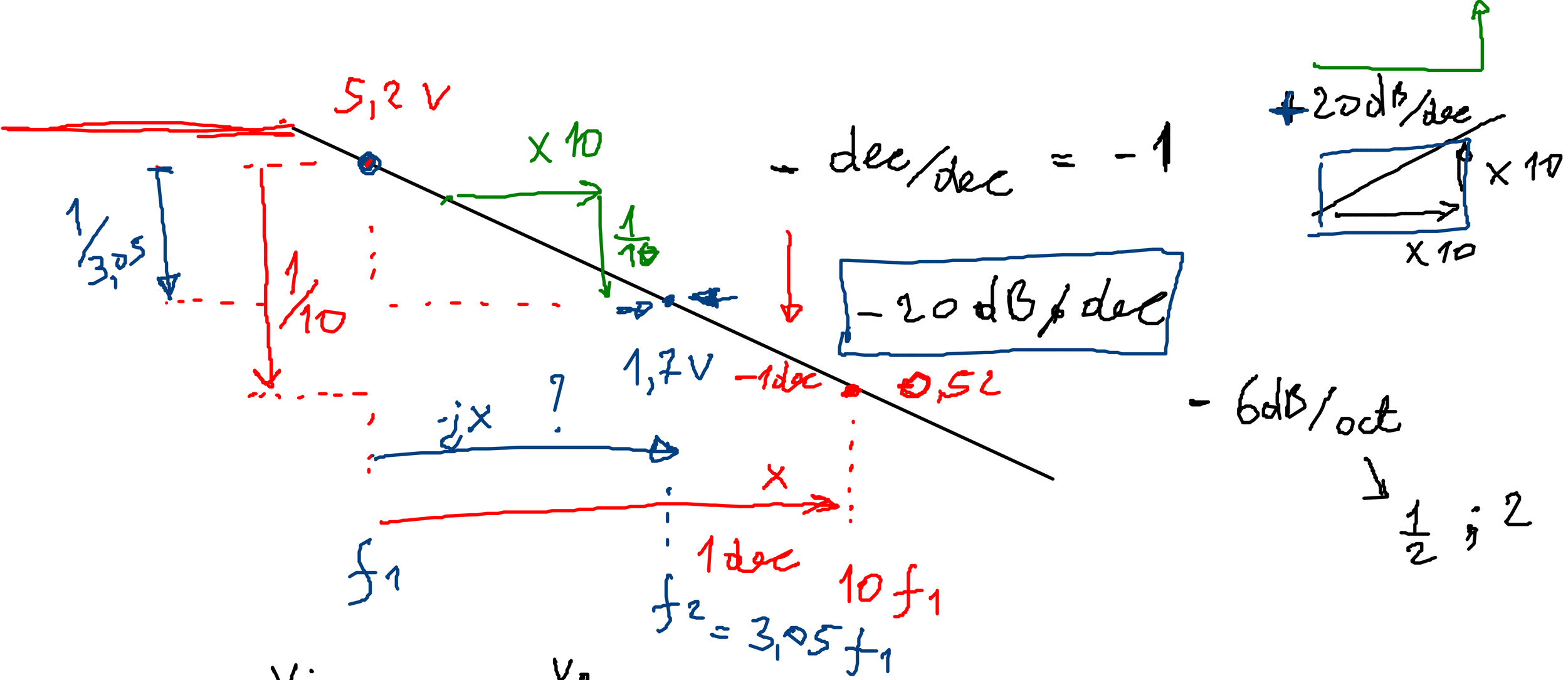
$C = 10 = 10^1$

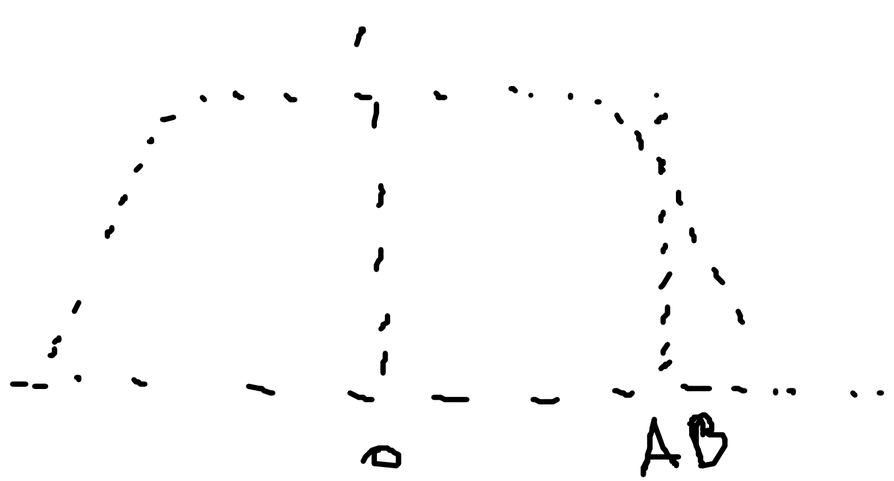
$C_B = 1$

dB = . 0. .

decibel $\underbrace{C_B\ Bel}_{} = X$; $C = \frac{2P_1}{P_{ref}} = \underbrace{10^{2X}}_{}$

C (2) 1 $\log C$


5,2 V
x 10
1/3,05
1/10
1/10
1,7V
-1dec
0,52
jx
?
x
f1
1dec
10 f1
f2 = 3,05 f1
- dec/dec = - 1
-20 dB/dec
+20dB/dec
x 10
x 10
- 6dB/oct
1/2 ; 2
Vi
Vo
R
Xc = 1/jωc

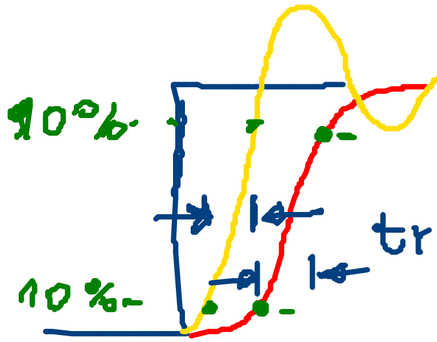


SR: Slew Rate ← saturación OPA

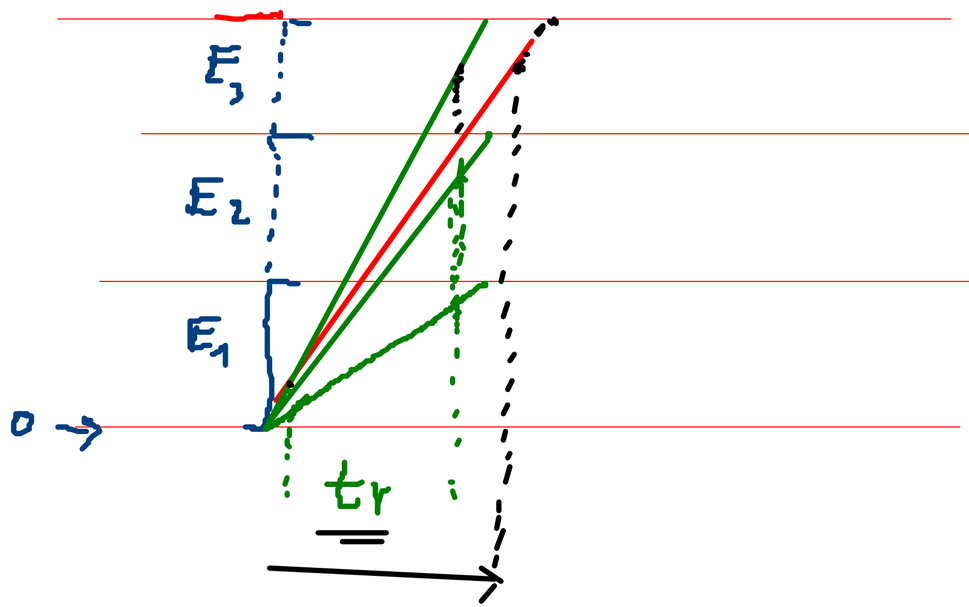
tiempo de subida
rise time : tr

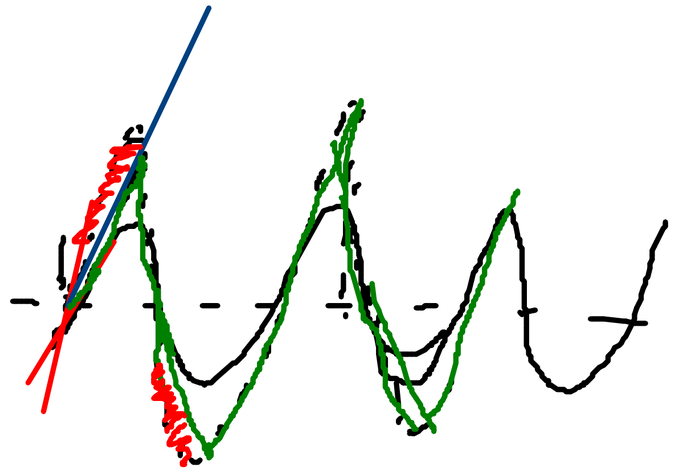
2,5; 10 V/µs

SR [V/S]

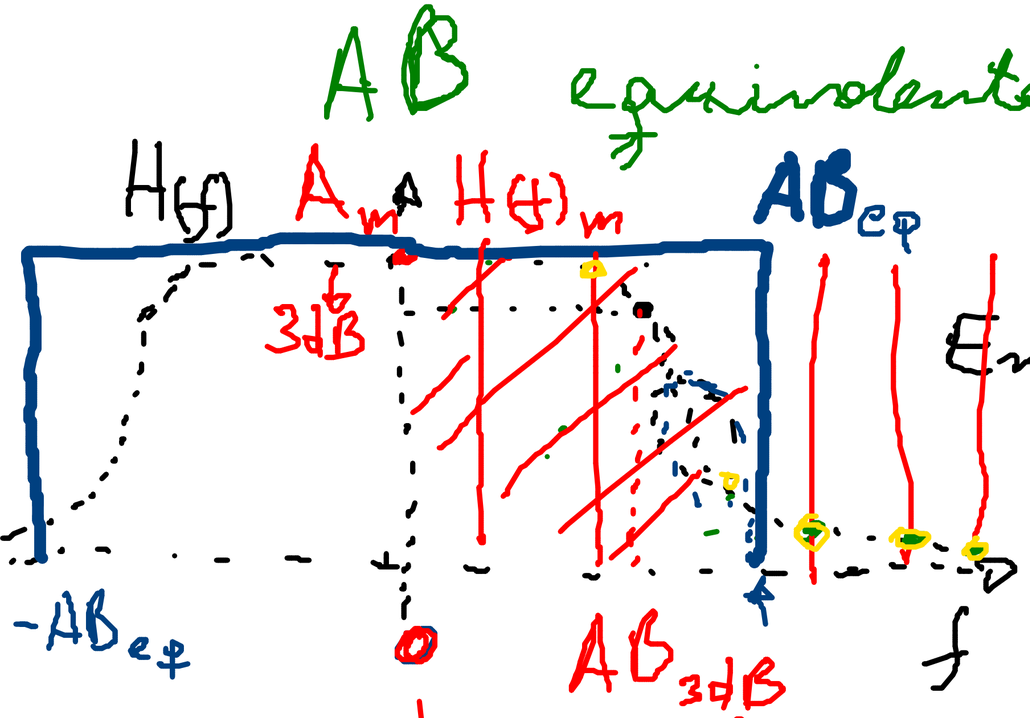


$$tr \cong \frac{0,35}{AB\ [Hz]} \cong \frac{2,2}{AB\ [t/s]}$$





AB equivalente



- 20 dB/dec
- 40
- 60

Butter ...

Chebitcheff / ~~dobro~~ ? ...

Bessel

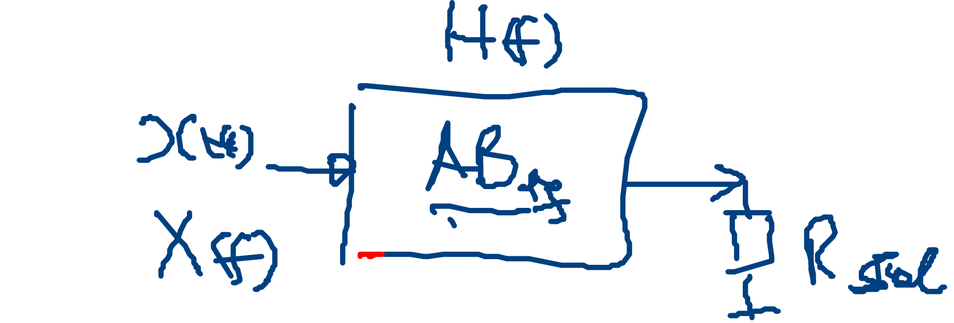
Eliptico / Cauer ? ...

Señal de entrada

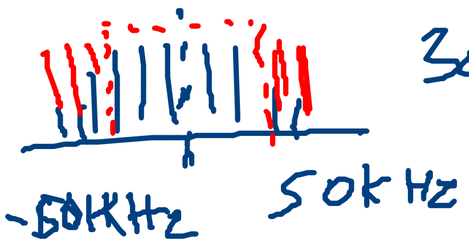
$$E = \int_{-\infty}^{\infty} 1 \cdot |H(f)|^2 \cdot df = 2AB_{eq} \cdot H(f)_m^2$$

$$\int_0^{\infty} |H(f)|^2 \cdot df = AB_{eq} \cdot |H(f)_m|^2$$

$$AB_{equiv} = \frac{\int_0^{\infty} |H(f)|^2 \cdot df}{|H(f)_m|^2}$$

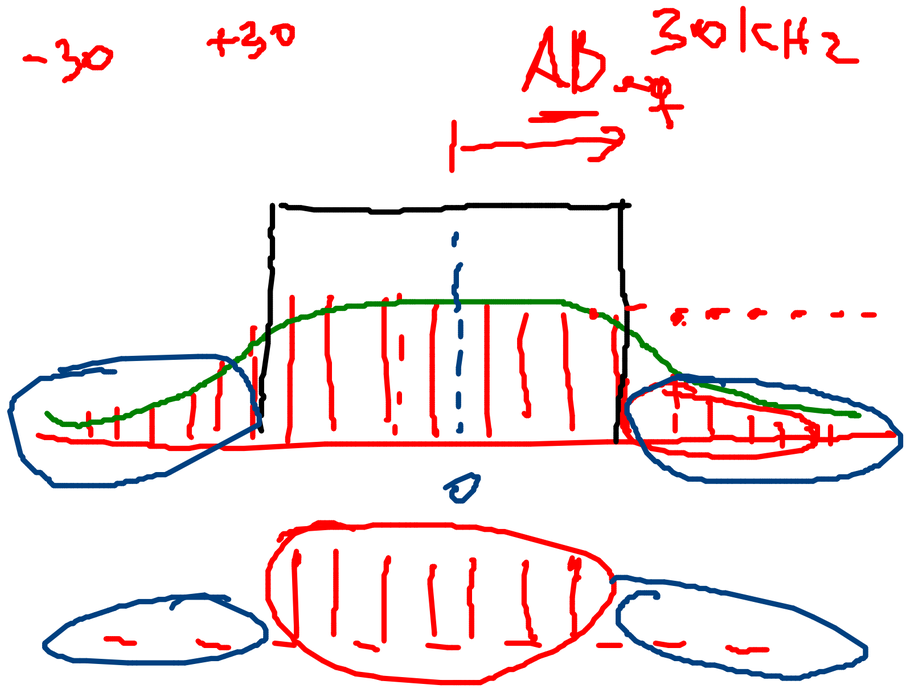


$$E_{sol} = \frac{1}{R_{sol}} \int_{-\infty}^{\infty} |X(f)|^2 \cdot |H(f)|^2 \cdot df$$



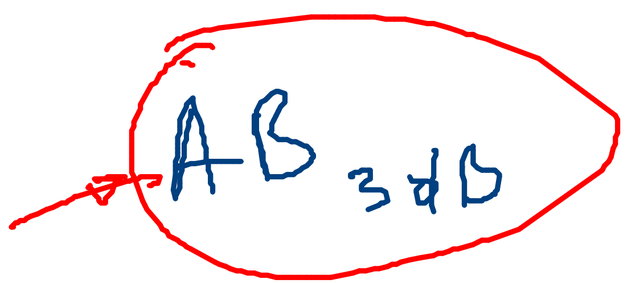
$$E_{sol} = \frac{1}{R_{sol}} 2 \cdot \int_{0}^{AB_{eq}} |H(f)|^2 \cdot |E(f)|^2 \cdot df$$

-30 +30

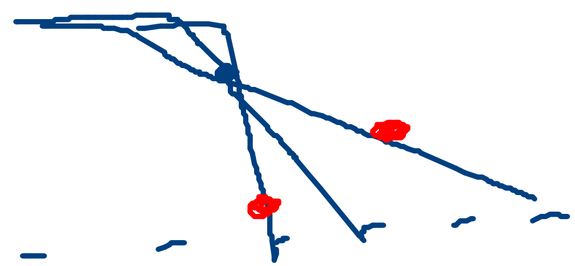


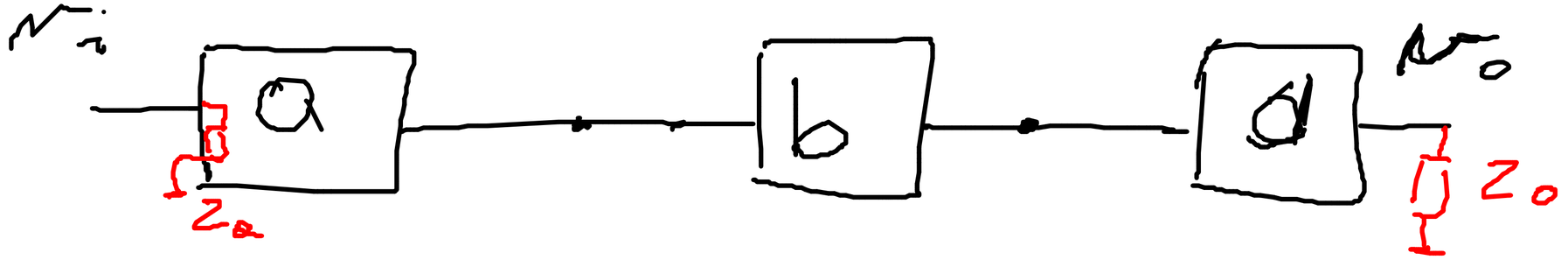
$$E_{sol} = \frac{1}{R_{sol}} |H|_m \cdot \int_{f=-AB_{eq}}^{+AB_{eq}} |E(f)|^2 \cdot df$$

$$2|H|_m \int_{0}^{AB_{eq}}$$



AB_{eq}





$Z_o = Z_o$

$V_o = a \cdot b \cdot C \cdot V_i \rightarrow \frac{V_o}{V_i} = a \cdot b \cdot c$ ganancia de V

¿ Ganancia de P_w? $\rightarrow C = \frac{P_o}{P_i} = \frac{(V_o)^2}{Z_o} \cdot \frac{Z_o}{V_i^2} = \left(\frac{V_o}{V_i}\right)^2$

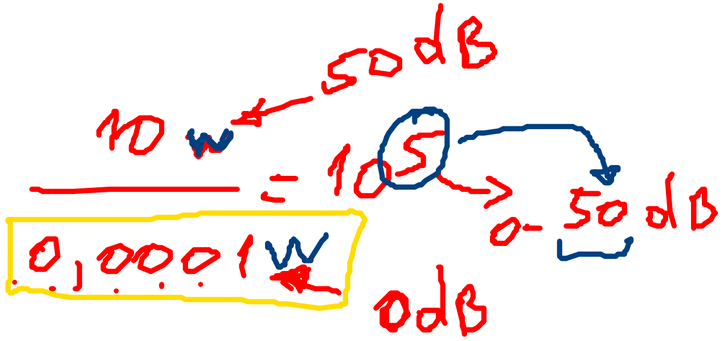
$C_{dB} = 10 \log C = 10 \cdot \log \left(\frac{V_o}{V_i}\right)^2 = 20 (\log V_o + \log V_i)$

$= 20 \cdot \log (a \cdot b \cdot c \frac{V_o}{V_i}) = \underline{20 \log a} + 20 \log b + 20 \log c$

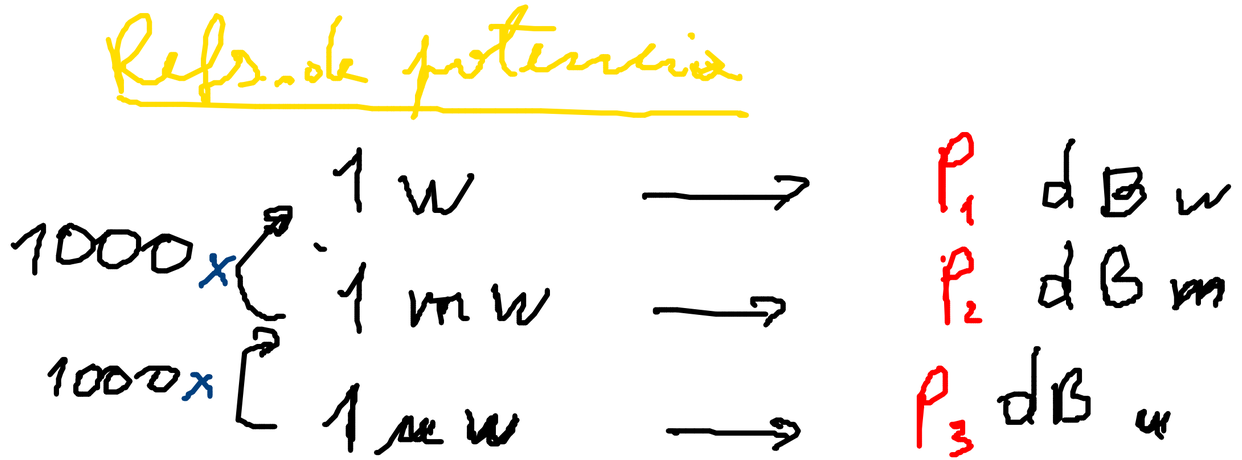
$C_{dB} = A_{dB} + B_{dB} + C_{dB}$

$a = 5 \frac{dB}{A}$ $\quad a:$ A

Ganancias: [dB] ← Potencias



Refs. de potencia



$7{,}2\ W \rightarrow ¿^{8,5}\ dB_W?$

$10 \log\left(\frac{7{,}2\ W}{1\ W}\right)$! $\log(7{,}2 \cdot 1000)$

! $\log 7{,}2 + \log 1000$

$10 \cdot (0{,}85 + 3)$

$P_2[dB_m] = 8{,}5\ dB_W + 30\ dB$

$P_3[dB_\mu] = 8{,}5\ \boxed{dBW} + 60\ \boxed{dB}$

$= 68{,}5\ dB_\mu$