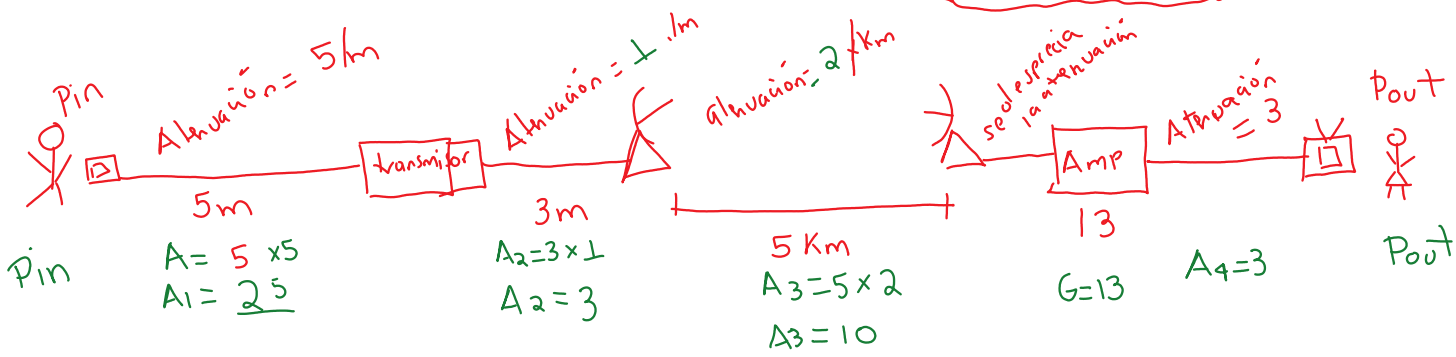
Ejercicio ganancia/atenuación

jueves, 10 de septiembre de 2020 6:34 p. m.

$$\text{Ganancia} = \frac{P_{out}}{P_{in}} \qquad \text{Atenuación} = \frac{P_{in}}{P_{out}} \qquad G = \frac{1}{A}$$



Pin

$A = 5 \times 5$

$A_1 = \frac{25}{}$

$A_2 = 3 \times 1$

$A_2 = 3$

$A_3 = 5 \times 2$

$A_3 = 10$

$G = 13$

$A_4 = 3$

Pout

$$P_{in} * \frac{1}{25} * \frac{1}{3} * \frac{1}{10} * 13 * \frac{1}{3} = P_{out}$$

$$P_{in} * 0{,}0057 = P_{out}$$

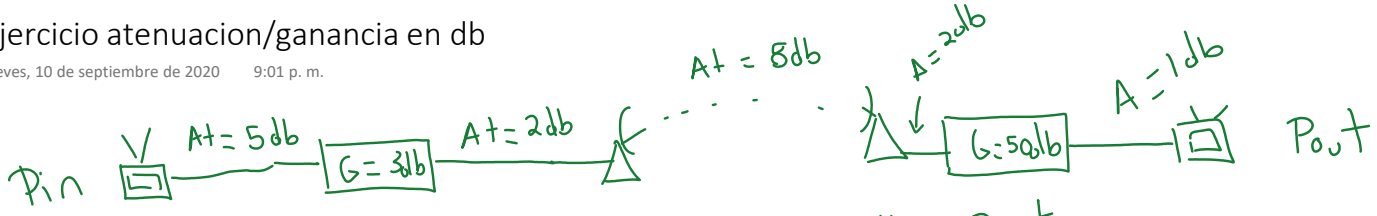
$$G_{total} = \frac{P_{out}}{P_{in}} = 0{,}0057 //$$

$$A_{total} = \frac{P_{in}}{P_{out}} = \frac{1}{0{,}0057} = 173{,}08 //$$

Si $P_{in} = 1W \rightarrow P_{out} = G_{total} \times P_{in} = 5{,}7\ mW$

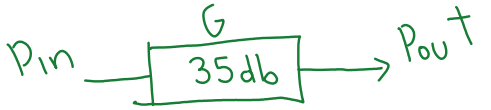
Ejercicio atenuacion/ganancia en db

jueves, 10 de septiembre de 2020 9:01 p. m.



$$P_{in} - 5db + 3db - 2db - 8db - 2db + 50db - 1db = P_{out}$$

$$P_{in} + 35db = P_{out} \rightsquigarrow P_{out} - P_{in} = 35db = G_{(db)}$$



$$\frac{P_{out}}{P_{in}} = ?$$

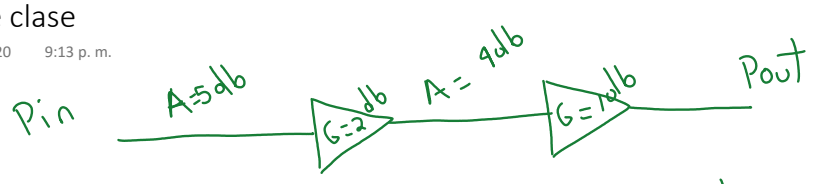
$$35db = 10 \log\left(\frac{P_{out}}{P_{in}}\right)$$

$$3,5 = \log\left(\frac{P_{out}}{P_{in}}\right) \rightarrow 10^{3,5} = \cancel{10}^{\log\left(\frac{P_{out}}{P_{in}}\right)}$$

$$10^{3,5} = \frac{P_{out}}{P_{in}} \rightarrow \frac{P_{out}}{P_{in}} = 3162 = G$$

Ejercicio final de clase

jueves, 10 de septiembre de 2020 9:13 p. m.



$$P_{in} - 5db + 2db - 4db + 1db = P_{out}$$

$$P_{in} - 6db = P_{out} \rightarrow P_{out} - P_{in} = -6db = G_{(db)}$$

$$G_{(db)} = -6\,db \;/\!/ \rightarrow G_{(db)} = 10\log\left(\frac{P_{out}}{P_{in}}\right)$$

$$G = \frac{P_{out}}{P_{in}} = ?$$

$$-6 = 10\log(G)$$

$$G = 0{,}25$$

$$\frac{-6}{10} = \log(G)$$

$$10^{-0{,}6} = G$$