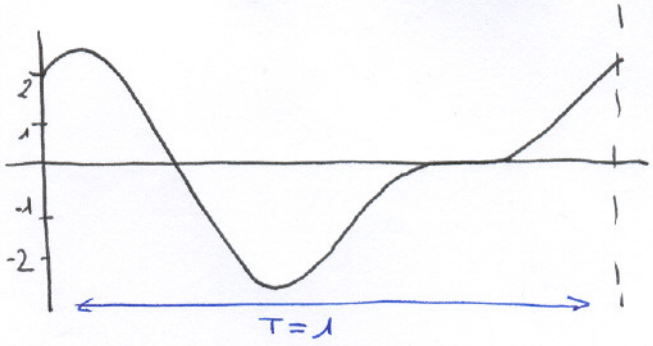
NOELIA Mª DELSO FERRER

$f(t) = 2\cos(2\pi t) + \text{Sen}(4\pi t)$ ANGULAR

$2\cos(t) + \text{Sen}(2t)$ LINEAL

$AB = 2\,Hz$



a) $f_{\text{mínima}} = f_{\text{NIQUIST}} = 2f_{AB} = \boxed{4\,Hz}$

b) • MUESTREADOR: $f_S = 8Hz$

$T_S = \frac{1}{f_S} \Rightarrow \frac{1}{f_S} = \frac{1}{8} = \underline{0'125}$ ~~(Ancho de Cada una de~~

• CUANTIZADOR: 64 niveles $= n$

• CODIFICADOR: $\boxed{m = \log_x n}$; $\boxed{AB = \frac{1}{\tau}}$

BINARIO	CUATERNARIO
$m = \log_2 64 = 6$ niveles	$m = \log_4 64 = 3$ niveles
$\tau = \frac{T_S}{6} = 0'02083$	$\tau = \frac{T_S}{3} = 0'04166$
$AB = \frac{1}{\tau} = \underline{48\,Hz}$	$AB = \frac{1}{\tau} = \underline{24\,Hz}$

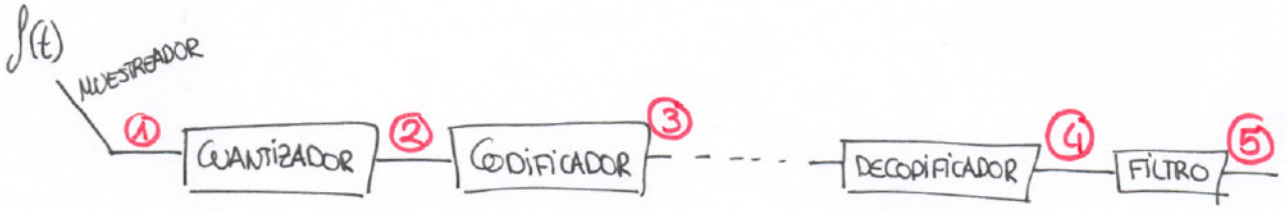
Capacidad Del Canal ⇒ $\boxed{C = \frac{\log_2 n}{\tau}}$; $\boxed{C = 2w\log_2 n}$ $w = AB$

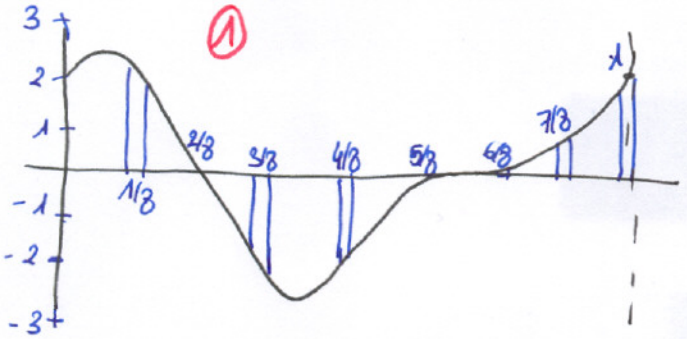
$C = \frac{\log_2 2}{\tau} = \frac{1}{\tau} = \frac{1}{0'02083} \Rightarrow$	$C = \frac{\log_2 4}{\tau} = \frac{2}{0'04166} \Rightarrow$
$\boxed{C = 48}$	$\boxed{C = 48}$
$w = \frac{C}{2\log_2 2} = \frac{48}{2} = \boxed{24\,Hz}$	$w = \frac{C}{2\log_2 4} = \frac{48}{2 \cdot 2} = \boxed{12\,Hz}$

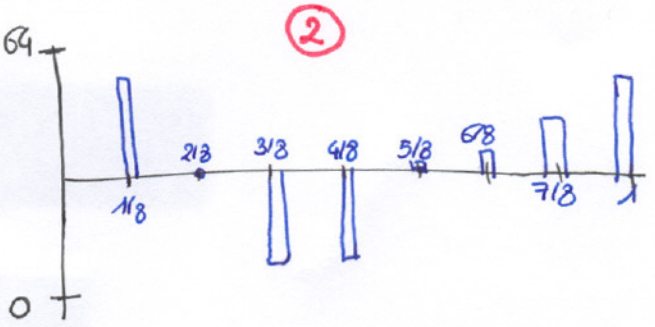
(Para Transmitir la misma señal, mismo canal)

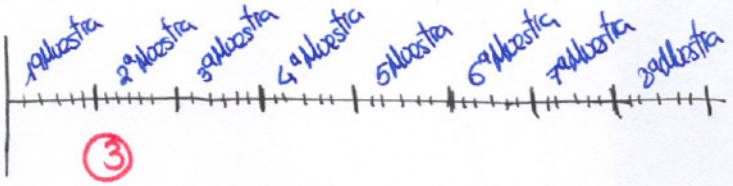
Ancho De Banda Mínimo Para que se transmita la señal

c)









④ Igual que ②

⑤ Aproximación de la señal Original

d) MUESTREO y MULTIPLEXIÓN 3 señales

$T_S = 0'125$ antes $\Rightarrow$ $T_S = \frac{0'125}{4} = 0'015625$

$\frac{1}{B_S} = \frac{1}{8}$ $\quad \frac{1}{B_S \cdot 8} = \frac{1}{8 \cdot 8} = \nearrow$

BINARIO	CUATERNARIO
$m = \log_2 64 = 6$ pulsos en T_S	$m = \log_4 64 = 3$ pulsos en T_S
$\tau = \frac{T_S}{6} = 2'6042$	$\tau = \frac{T_S}{3} = 5'2083$
$AB = \frac{1}{\tau} = 0'40$ Hz	$AB = \frac{1}{\tau} = 0'1920$ Hz
$C = \frac{\log_2 2}{\tau} = \frac{1}{\tau} =$ 2'384	$C = \frac{\log_2 4}{\tau} = \frac{2}{\tau} =$ 0'384
$W_{AB} = \frac{C}{2\log_2 2} = \frac{0'384}{2} =$ 0'192 Hz	$W_{AB} = \frac{C}{2\log_2 4} = \frac{0'384}{4} =$ 0'096 Hz