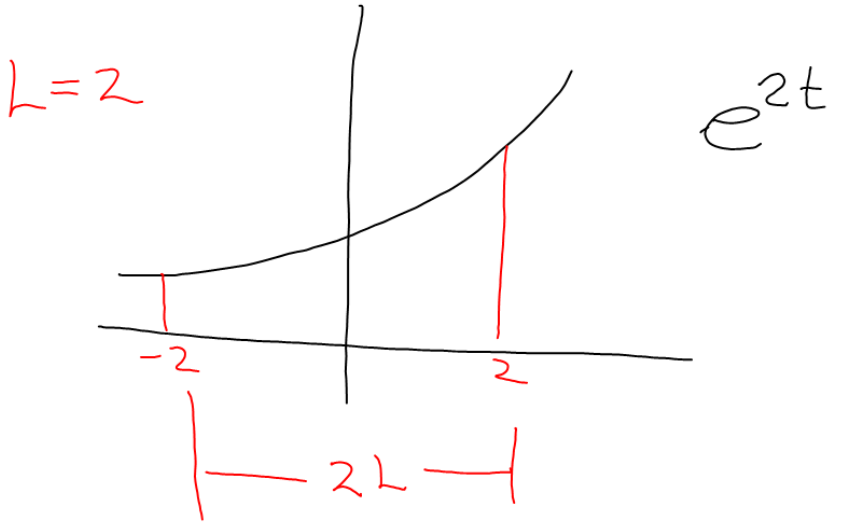
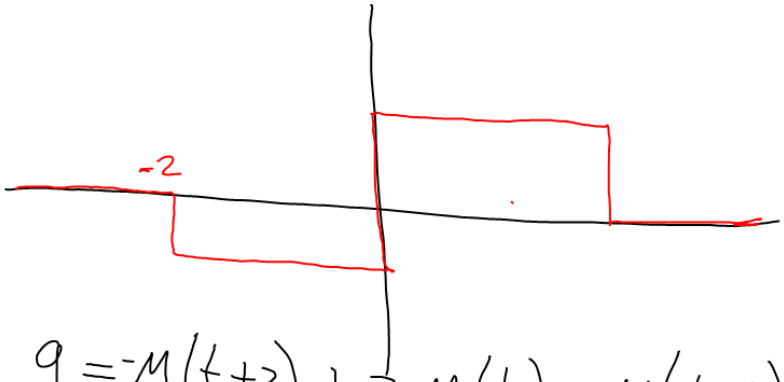
Avisos importantes:

Hoy se sube la serie 4 para entregar: martes 24 a 23.59 h.

Jueves 26 subir la solución de las 4 series.

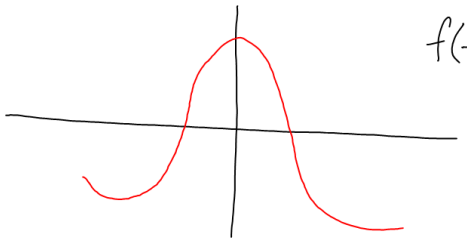
Serie Trigonométrica de Fourier





$$g = -u(t+2) + 2u(t) - u(t-2)$$

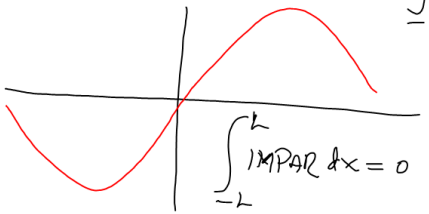
Simetria



$f(-a) = f(a)$

PAR

$$\int_{-L}^{L} PAR\ dx = 2\int_{0}^{L} PAR\ dx$$



$$\int_{-L}^{L} IMPAR\ dx = 0$$

$f(-a) = -f(a)$

IMPAR

$\langle PAR \rangle \langle PAR \rangle = \langle PAR \rangle$

$\langle IMPAR \rangle \langle IMPAR \rangle = \langle PAR \rangle$

$\langle PAR \rangle \langle IMPAR \rangle = \langle IMPAR \rangle$

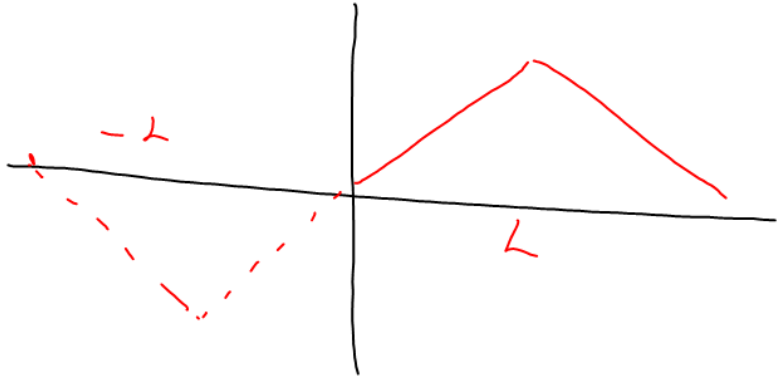
STF = IMPAR $\longrightarrow$ $a_0 = 0$ $a_n = 0$ $b_n \neq 0$

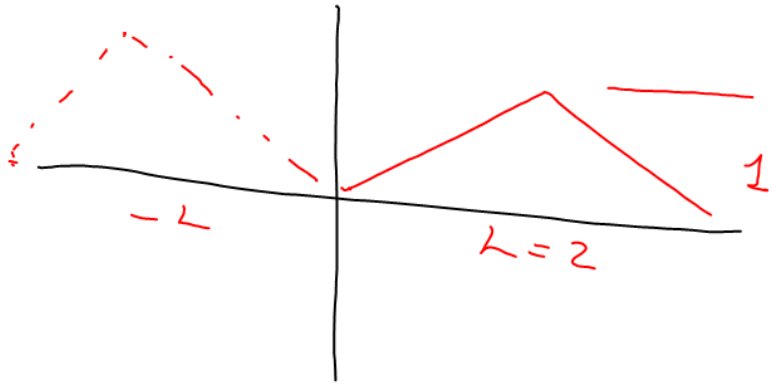
STF = PAR $\longrightarrow$ $a_0 \neq 0$ $a_n \neq 0$ $b_n = 0$.

Serie IMPAR $\longrightarrow$ $f = \sum_{n=1}^{\infty} b_n \operatorname{sen}\left(\frac{n\pi t}{L}\right)$

Serie PAR $\longrightarrow$ $g = \frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos\left(\frac{n\pi t}{L}\right)$

L


-L
L


1
-L
L=2

$$\frac{\partial^3 y}{\partial t^3} + 8\frac{\partial^2 y}{\partial x \partial t} + 3\frac{\partial y}{\partial x} = y$$

$y(x,t) = F(x)G(t)$

MUS.

→ STF.

SP

$y(0,t) = 1$

$y(5,t) = 3$

$y(x,0) = f(x)$

$y'(x,0) = 0$