04-ELECTRONICA-L-A2-S1-SSi-D
Participants
Badges
Competencies
Grades
General
4 October - 10 October
11 October - 17 October
18 October - 24 October
25 October - 31 October
1 November - 7 November

04-ELECTRONICA-L-A2-S1: Semnale şi sisteme (Seria D - 2021)

Time left 0:00:38

Question **1**

Not yet answered

Marked out of 1.00

Flag question

Să se calculeze Transformata Fourier pentru următorul semnal analogic neperiodic

$$x(t) = \begin{cases} t^2 - 2 \cdot t + 1, & t \in [0, 2] \\ 2, & t \in (2, 4] \\ 0, & t \in R - [0, 4] \end{cases}$$

Answer:

Quiz navigation

1

Finish attempt ...

Finish attempt ...

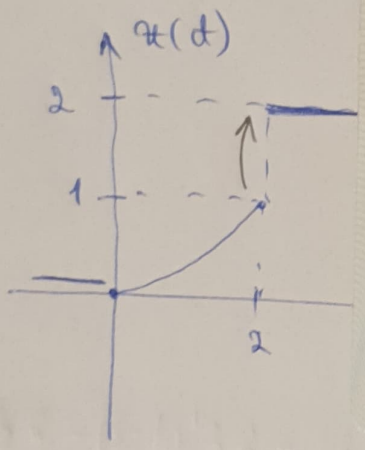
Teorie parțial
Jump to...
Incarcare rezolvare probleme parțial

Găujăneanu Nicoleta Monica, 424 D

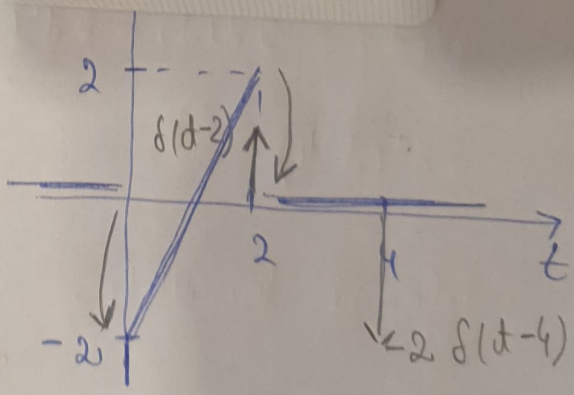
Partial SS

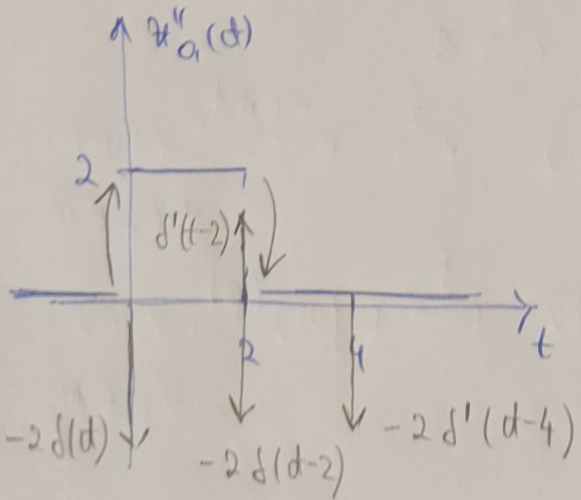
Calc. Transf. Fourier pentru:

$$x(t) = \begin{cases} t^2 - 2t + 1, & t \in [0,2] \\ 2, & t \in (2,4] \\ 0, & t \in \end{cases}$$



$$x'_a(t) = \begin{cases} 2t - 2, & t \in [0,2) \\ 0, & t \in \mathbb{R} \setminus [0,2) \end{cases}$$





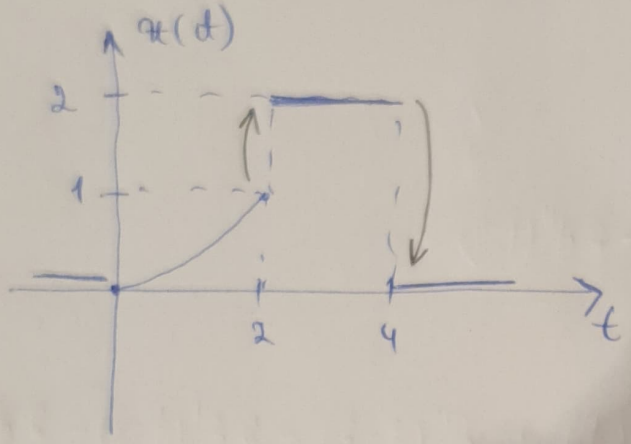
$$x''_a(t) = \begin{cases} 2, & t \in (0,2) \\ 0, & t \in \mathbb{R} \setminus (0,2) \end{cases}$$

Gâlgâneanu Nicoleta Monica, 434 D

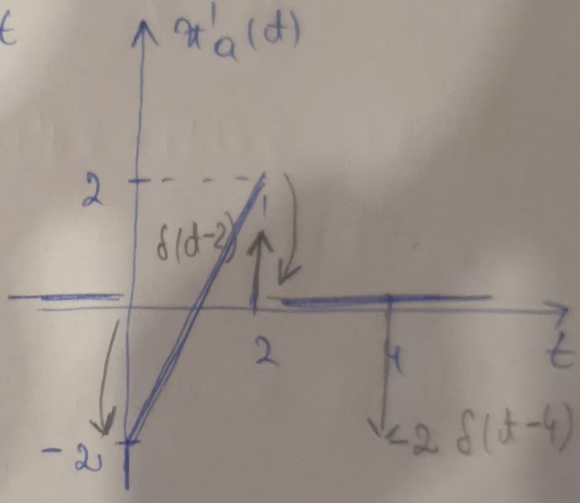
Partial 55

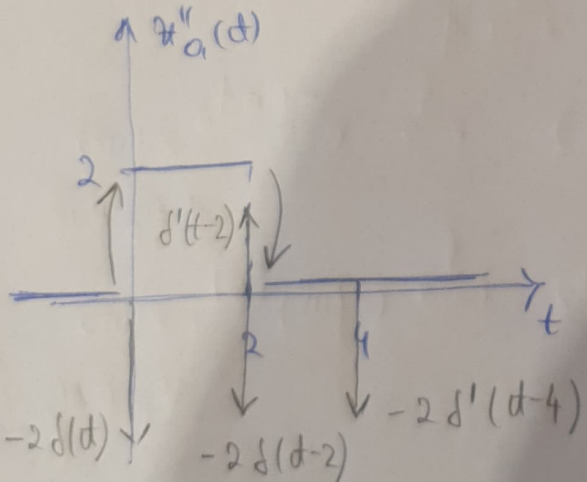
Calc. Transf. Fourier pentru:

$$x(t) = \begin{cases} t^2 - 2t + 1, & t \in [0,2] \\ 2, & t \in (2,4] \\ 0, & t \in \mathbb{R} \setminus [0,4] \end{cases}$$



$$x'_a(t) = \begin{cases} 2t - 2, & t \in [0,2) \\ 0, & t \in \mathbb{R} \setminus [0,2) \end{cases}$$

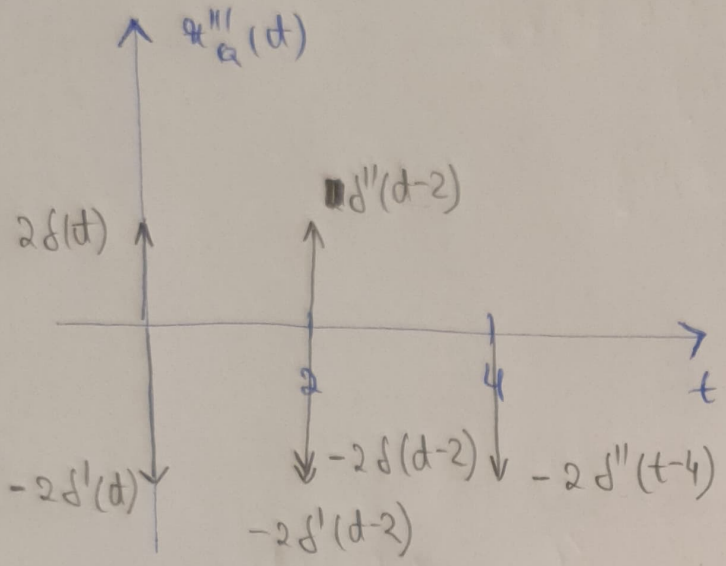




$$x''_a(t) = \begin{cases} 2, & t \in (0,2) \\ 0, & t \in \mathbb{R} \setminus (0,2) \end{cases}$$

Găujăneanu Nicoleta Monica, 424D

$x'''_a(t) = 0$, $t \in \mathbb{R} \setminus \{0, 2, 4\}$



$x'''(t) = 2\delta(t) - 2\delta'(t) + \delta''(t-2) - 2\delta'(t-2) - 2\delta(t-2) -$

$- 2\delta''(t-4)$.

Folosim formulele: $\delta(t) \overset{\mathcal{F}}{\longleftrightarrow} 1$

$x(t-t_0) \overset{\mathcal{F}}{\longleftrightarrow} e^{-j\omega t_0} \cdot X(\omega)$

$\forall t_0 \in \mathbb{R}$.

$x^{(p)}(t) \overset{\mathcal{F}}{\longleftrightarrow} (j\omega)^{(p)} \cdot X(\omega)$

$\forall p \in \mathbb{N}$.

Găujoneanu Nicolita Monica, 424D

$$(j\omega)^3 \cdot X(\omega) = 2 \cdot 1 - 2 \cdot e^{-j\omega \cdot 0} \cdot 1 + (j\omega)^2 \cdot e^{-2j\omega} -$$

$$- 2j\omega \cdot e^{-2j\omega} - 2 \cdot e^{-2j\omega} - 2(j\omega)^2 \cdot e^{-4j\omega} \Rightarrow$$

$$\Rightarrow X(\omega) = \frac{2-2+e^{-2j\omega}((j\omega)^2 - 2j\omega - 2) - 2e^{-4j\omega} \cdot j^2\omega^2}{(j\omega)^3}$$

$$X(\omega) = \frac{e^{-2j\omega}(j^2\omega^2 - 2j\omega - 2) - 2e^{-4j\omega} \cdot j^2\omega^2}{j^3\omega^3}.$$