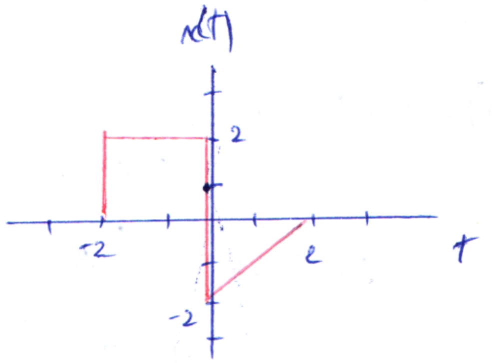
Bekhira Gacem Zomine

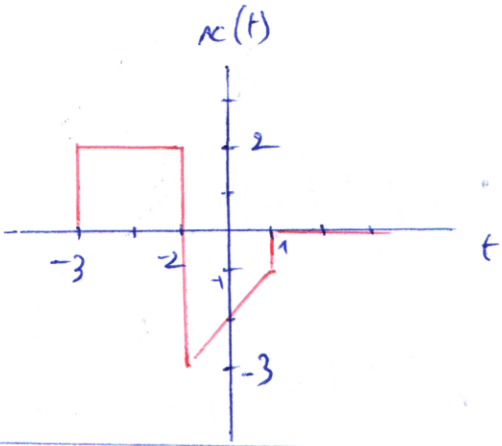
Ex 1 :

$$x(t) = \begin{cases} 2, & -2 \leq t < 0 \\ t-2, & 0 \leq t < 2 \\ 0, & \text{sinon} \end{cases}$$



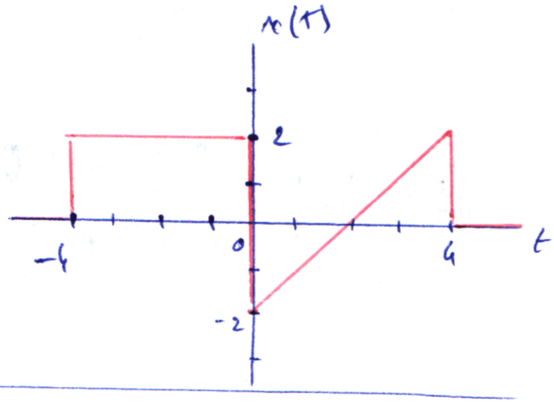
a) $x(t-1)$

$$x(t-1) = \begin{cases} 2, & -3 \leq t-1 < -1 \\ t-2, & -1 \leq t-1 < 1 \\ 0, & \text{sinon} \end{cases}$$



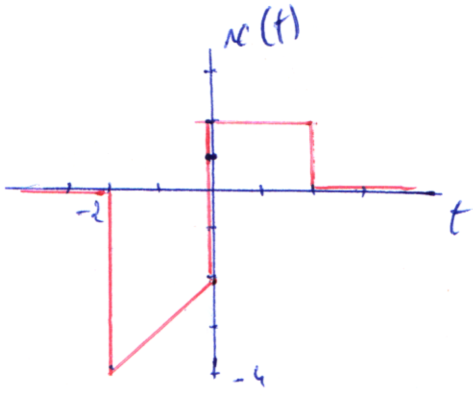
b) $x(2t)$

$$x(2t) = \begin{cases} 2, & -4 \leq 2t < 0 \\ t-2, & 0 \leq 2t < 4 \\ 0, & \text{sinon} \end{cases}$$



c) $x(-t)$

$$x(-t) = \begin{cases} 2, & 0 < -t \leq 2 \\ t-2, & -2 < -t \leq 0 \\ 0, & \text{sinon} \end{cases}$$



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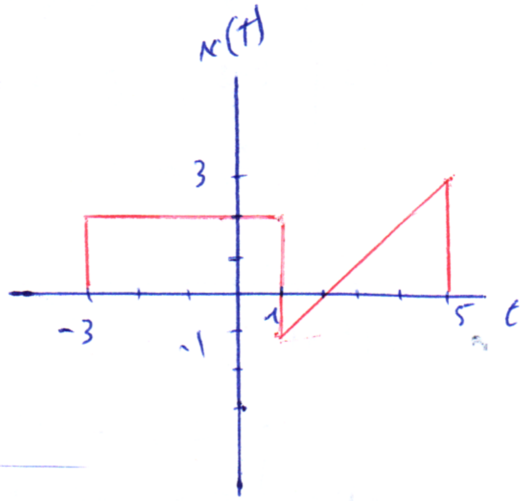
Ex 1

d). $x(2t+1)$

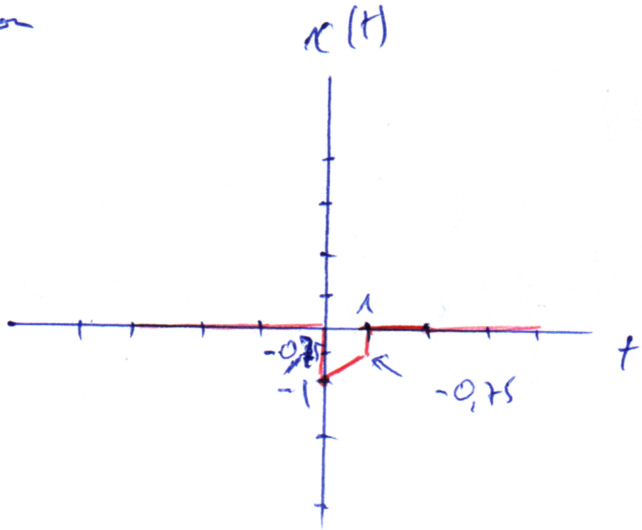
$$x(2t+1) = \begin{cases} 2 \,, & -3 \leq 2t+1 < 1 \\ t-2 \,, & 1 \leq 2t+1 < 5 \\ 0 \,, & \text{sinon} \end{cases}$$



e) $\frac{1}{4} x\left(-\frac{1}{2}t+1\right) - \frac{1}{2}$.

$$x\left(-\frac{1}{2}t+1\right) = \begin{cases} 2 \,, & 1 < -\frac{1}{2}t+1 \leq 2 \\ t-2 \,, & 0 < -\frac{1}{2}t+1 \leq 1 \\ 0 \,, & \text{sinon} \end{cases}$$

$$\frac{1}{4} x\left(-\frac{1}{2}t+1\right) - \frac{1}{2} = \begin{cases} \frac{1}{4} \times 2 - \frac{1}{2} = 0 \,, & 1 < -\frac{1}{2}t+1 \leq 2 \\ \frac{1}{4}(t-2) - \frac{1}{2} \,, & 0 < -\frac{1}{2}t+1 \leq 1 \\ 0 \,, & \text{sinon} \end{cases}$$



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Ex 2

→ on dit qu'une fonction est periodique si et seulement si un nombre réel positif telque : pour tous x et $(x+T)$ du domain

on a $\begin{cases} f(x+T) = f(x) \\ \text{ou} \\ f(x-T) = f(x) \end{cases}$

→ $T > 0$ si $K < 0$ donc $y(t) = \sum_{k=-\infty}^{0} x(t+T)$

sinon $y(t) = \sum_{k=0}^{+\infty} x(t-T)$

donc $y(t)$ est periodique, et sa periode est T

~~Ex 3~~:

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Ex 4

→ On aura 3 possibilité des chemins.

① $T_1 \; T_2 \; T_3$

② $T_1 \; T_2 \; T_4$

③ $T_1 \; T_5$

et puisque $y(t)$ est exclusive XOR des possibilité

donc

$$y(t) = x T_1 T_2 T_3 \oplus x T_1 T_2 T_4 \oplus x T_1 T_5$$