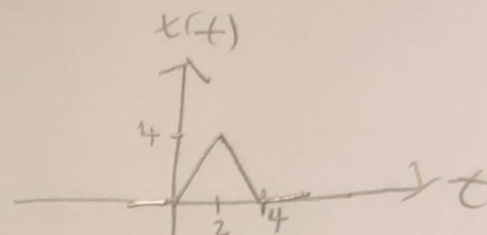


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Quiz.

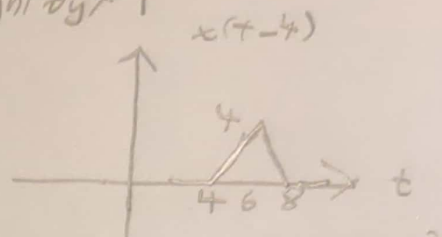
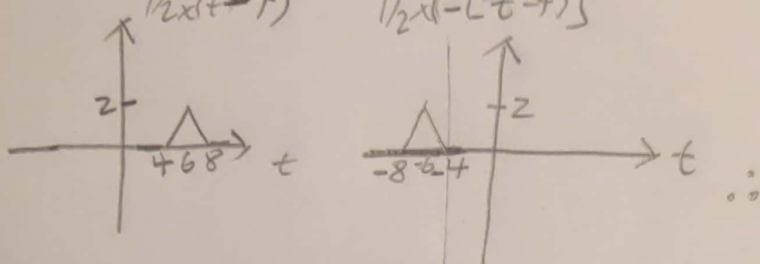
1. $x(t) = \begin{cases} 2t & 0 \leq t \leq 2 \\ -2t+8 & 2 \leq t \leq 4 \\ 0 & \text{otherwise} \end{cases}$



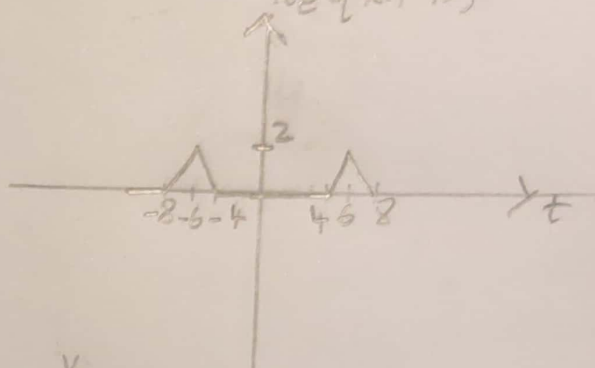
a) $x_1(t) = \text{even}\{x(t-4)\}$, $x(t-4)$: shift to right by 4

$x_e(t) = x_e(t) + x_o(t)$

$x_e(t) = \frac{1}{2}[x(t) + x(-t)]$

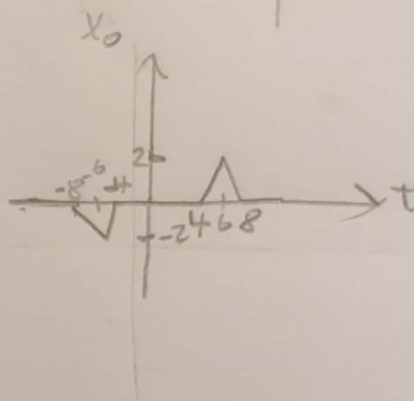
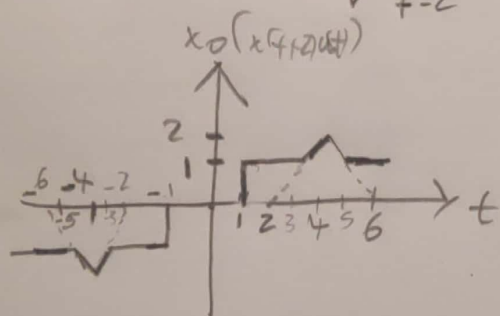
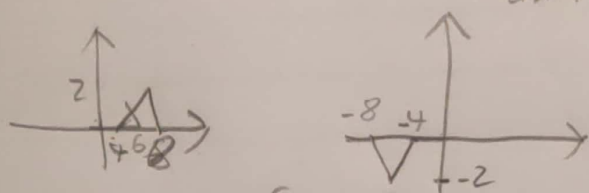


$x_e\{x(t-4)\}$



b) $x_2(t) = \text{odd}\{x(t+2)u(t)\}$

$x_o(t) = \frac{1}{2}x(t) - \frac{1}{2}x(-t)$



2. $x[n] = (\frac{1}{2})^{2n} u[n]$:-

Signal is aperiodic

∴ unit step function is aperiodic

$x[n] = e^{j(\frac{\pi}{2}n - \frac{\pi}{8})}$

$= \cos[\dots] + j\sin[\dots]$

Signal is periodic

∴ there is a fundamental period

$T_0 = \frac{2\pi}{\omega_0}$