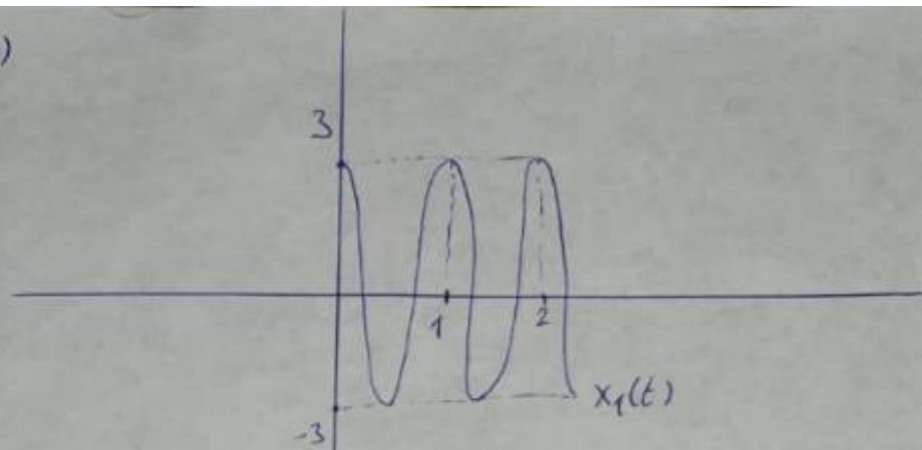
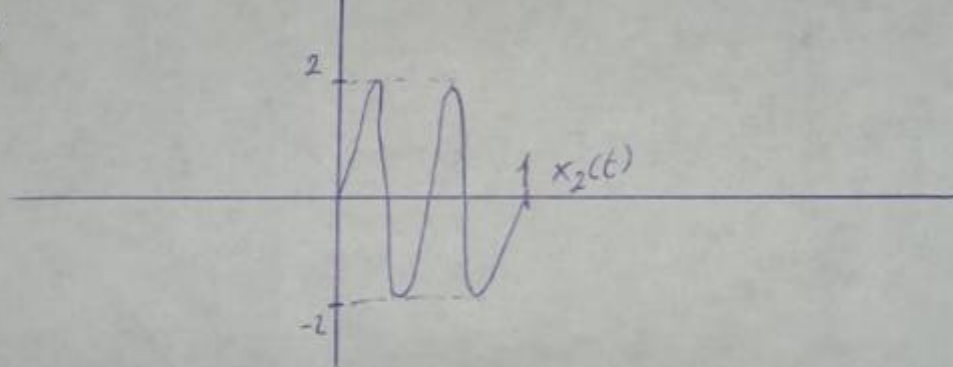


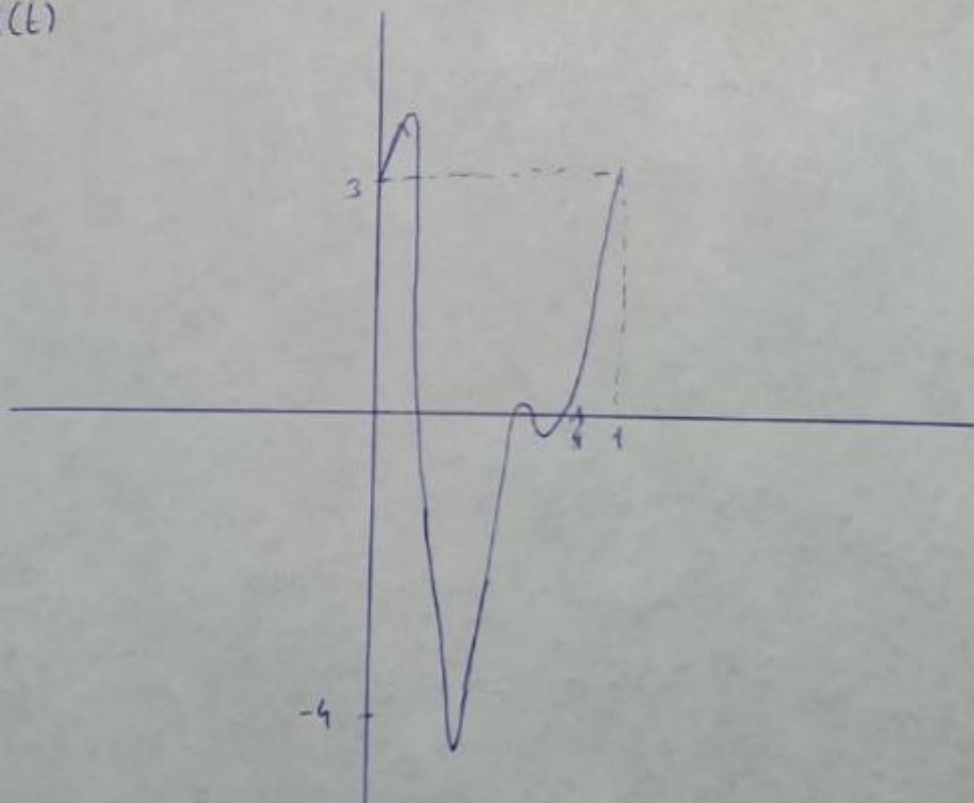
1. $x_1(t)$



$x_2(t)$



$x(t)$



Problem 1: $x(t) = 3\cos(2\pi t) + 2\sin(4\pi t)$

$$x(t) = x_1(t) + x_2(t)$$

2.

$$x_1(t) = 3\cos(2\pi t) \Rightarrow a \cos(\omega t) \rightarrow T_1 = \frac{2\pi}{\omega_1} \Rightarrow T_1 = \frac{2\pi}{2\pi} = 1$$

$$x_2(t) = 2\sin(4\pi t) \Rightarrow a \sin(\omega t) \rightarrow T_2 = \frac{2\pi}{\omega_2} = \frac{2\pi}{4\pi} \Rightarrow T_2 = \frac{1}{2}$$

$$F_1 = \frac{1}{T_1} = 1$$

$$F_2 = \frac{1}{T_2} = 2$$

3. tot. Energy $\rightarrow \int_{t_1}^{t_2} |x(t)|^2 dt$

Avg. power $\rightarrow \frac{1}{(t_2 - t_1)} \int_{t_1}^{t_2} |x(t)|^2 dt$

Problem 2:

Assume that $x[n] \rightarrow x = \{1, -2, 3, -4, 5\}$ (an array)

1. Since $x[n] = \{1, -2, 3, -4, 5\}$, The length of $x[n]$ is 5 due to the number of cells
2. $x[3]$ works like an array so when we count from index 0 $x[3] = \{4\}$
3. $S = \text{sum}(x, \text{"all"})$ sums all elements (Cells in this case) in S
4. $E = (x.^2)$ takes the square of every element in this array and stores the value in E