Homework 1
Deadline:
1400/12/17
23:59

signal and systems

1- sketch the folloing signals:

notes:
u(t) is the unit step function.
you should write your answer step by step!

$$x(t) = |t-2|.u(t-2) - u(t-12)$$

$$x(n) = u(-n+2) + u(3-n) + u(3)$$

2- check the orthogonality of the set

$$\Psi = \{\cos(kt), k \in Z\}$$

3- Write the Maclaurin series expansion of the following function:

$$x(t) = \cos(\omega t + \varphi)$$

4- check the orthogonality of the set and find the energy of signal δ_Δ

$$\Psi = \{\delta_\Delta(t - k\Delta), k \in Z\}$$