Practice Problem Set #1 (Term I 2012-13)

Q1. For the triangular pulse signal x(t) shown below, sketch each of the following signals derived from x(t):



Q2. For the shown triangular pulse $\Lambda(t)$, sketch each of the following signals derived from x(t):



Q3. Decompose the following signals into even and odd parts:

(a)
$$x_1(t) = cos(2t) + sin(3t^2)$$

(b) $x_2(t) = [u(t) - u(t-1)]$

(c)
$$x_3(t) = t \cos(t)$$

(d)
$$x_4(t) = e^{j2t}$$

(e) $x_5(t) = sin(\pi/3)$

(f)
$$x_6(t) = \sin(2t + 4\pi)$$



Q4. For the shown triangular pulse $\Lambda(t)$, sketch each of the following signals derived from x(t):



Q5. For the triangular pulse signal x(t) shown below, sketch each of the following signals derived from x(t):



Q6. For the signal x(t) given below, calculate an expression for each of the following signals derived from x(t):

$$x(t) = \begin{cases} 1, & -1 \le t < 1 \\ 2, & 1 \le t < 2 \\ 0, & elsewhere \end{cases}$$

(a) y1(t)= x(t/2)
(b) y2(t)= x(-2t-1)
(c) y3(t)= x(-t/2+1)+1