1. Escriba en término de escalones a la derecha las siguientes seáles, simplificando la expresión:

   (a)
   $$x(t) = \begin{cases} -t & , t < -1 \\ 1 - t & , -1 < t < 0 \\ t^2 & , 0 < t < 1 \\ 1 & , t > 1 \end{cases}$$

   (b) $x(t) = |t^2 - 4|$, $-6 < t < 6$, $t \neq 2$, $t \neq -2$

   (c) $x(t) =$Par$\{|t - 1|\}$, $-2 < t < 2$, $t \neq 1$, $t \neq -1$

   (d)
   $$x(t) = \begin{cases} 0 & , t < -\pi \\ -\sin t & , -\pi < t < 0 \\ \sin t & , 0 < t < \pi \\ 0 & , t > \pi \end{cases}$$

   (e)
   $$x(t) = \begin{cases} 1 - t^2 & , t < -1 \\ 0 & , -1 < t < 1 \\ t^2 - 1 & , t > 1 \end{cases}$$

2. Escriba $x(t)$ en forma explícita:

   (a) $x(t) = -t\,\mathbf{u}(-t) + (t - 1)\mathbf{u}(t - 1) + \mathbf{u}(t - 2)$

   (b) $x(t) = \mathbf{u}(-1 - t) - t\,\mathbf{u}(t + 1) + \mathbf{u}(t - 1)$

   (c) $x(t) =$Par$\left\{ \left(t - \frac{\pi}{2}\right) \left(\mathbf{u}(t) - \mathbf{u}(t - \frac{\pi}{2})\right) \right\}$, $\quad -\pi < t < \pi$

   (d) $x(t) = \cos(t)\left(\mathbf{u}(t + 2\pi) - \mathbf{u}(t + \pi) + \mathbf{u}(t) - \mathbf{u}(t - \pi)\right)$, $-2\pi < t < 2\pi$

3. Calcule el período de las señales periódicas:

   $$(a) \quad x(t) = \sin^2\left(\frac{2t}{3}\right) - 2\cos\left(\frac{6t}{5}\right)$$

   $$(b) \quad x(t) = 1 - \cos^3 t$$

   $$(c) \quad x(t) = 3\cos(2t)\cos^2(3t)$$

4. Halle la expresión de las siguientes señales en el intervalo $(-T/2, T/2)$ teniendo en cuenta que son señales periódias de período fundamental T:

   (a) $x(t) = |2t - 18|$, $8 < t < 10$

   (b) $x(t) = \left(\cos\left(\frac{2\pi}{3}t\right) + 2\cos\left(\frac{16\pi}{3}t\right)\right) \sin(\pi t)$.

   (c) $x(t) = 2 + 3\sin(2t)$, $\quad -\frac{3\pi}{2} < t < 2\pi$

   (d) $x(t) = 3 + 2\cos(3t)$, $\quad -\frac{\pi}{2} < t < \pi$

   (e) $x(t) =$Par$\left\{(t - \frac{\pi}{2})(\mathbf{u}(t) - \mathbf{u}(t - \frac{\pi}{2}))\right\}$, $\quad -\pi < t < \pi$

(f) $x(t) = \mathrm{Par}\{(t - \pi)(u(t) - u(t - \pi))\}, \quad -2\pi < t < 2\pi$

(g) $x(t) = \mathrm{Par}\{|t - 1|\}, \quad -2 < t < 2$

(h) $x(t) = \mathrm{Impar}\{|t - 1|\}, \quad -2 < t < 2$

(i) $x(t) = |\cos(3t)|, \quad -\frac{\pi}{2} < t < \pi$

(j) $x(t) = \cos t\,(u(t + 2\pi) - u(t + \pi) + u(t) - u(t - \pi)), \quad -2\pi < t < 2\pi$

(k) $x(t) = \cos^3(9t), \quad -\frac{3\pi}{2} < t < 2\pi$

(l) $x(t) = u(t), \quad -1 < t < 1$

(m) $x(t) = |\sin t|, \quad -\frac{\pi}{2} < t < \frac{\pi}{2}$

(n) $x(t) = \sin t, \quad -\frac{\pi}{2} < t < \frac{\pi}{2}$

(o) $x(t) = \sin t, \quad 0 < t < \frac{\pi}{2}$

(p) $x(t) = \sin t\,\left(u(t - \frac{\pi}{2}) - u(t - \pi)\right), \quad \frac{\pi}{2} < t < \frac{3\pi}{2}$

(q) $x(t) = \sin t, \quad 4\pi < t < 12\pi.$