1)

b) $s_1(t) = -\frac{2A}{\pi}\sum_{k=1}^{\infty}\frac{(-1)^k}{k}\cdot sen(k\cdot\omega_0\cdot t)$

c) $s_3(t) = 2\cdot A\cdot\sum_{k=1}^{\infty}\left[\frac{(-1)^k}{\pi\cdot k}+\frac{sen^2\left(\frac{k\cdot\pi}{2}\right)}{\frac{k\cdot\pi}{2}}\right]\cdot sen(k\cdot\omega_0\cdot t)$

2)

a) $\frac{\tau}{T_0} = \frac{1}{4}$

b) $A_0 = 0$;

$A_1 = 3{,}6$; $\theta_1 = -\cdot\frac{\pi}{4}$;

$A_2 = 2{,}55$; $\theta_2 = -\cdot\frac{\pi}{2}$;

$A_3 = 1{,}2$; $\theta_3 = -\cdot\frac{3\pi}{4}$.

3)

a) $s(t) = \begin{cases} 2-2t, & 0\le t<1 \\ 0, & 1\le t<3 \\ 2t-6, & 3\le t<4 \end{cases}$

com período $T_0 = 4$ e $\omega_0 = \frac{\pi}{2}$.

b) $A_0 = 0{,}5$; $A_1 = \frac{8}{\pi^2}$.

4)

$A = 5$; simetria par.

5)

a) $a_0 = 0$; $a_1 = 4{,}33$; $a_2 = 2{,}5$; $a_3 = 0$.

b) $A_0 = 0$;

$A_1 = 5$; $\theta_1 = 30^\circ$;
$A_2 = 5$; $\theta_2 = 60^\circ$;
$A_3 = 5$; $\theta_3 = 90^\circ$.

c) $c_0 = 0$;

$c_{-1} = 2{,}5\cdot e^{-j\cdot 30^\circ}$; $c_1 = 2{,}5\cdot e^{j\cdot 30^\circ}$;
$c_{-2} = 2{,}5\cdot e^{-j\cdot 60^\circ}$; $c_2 = 2{,}5\cdot e^{j\cdot 60^\circ}$;

$c_{-3} = 2{,}5 \cdot e^{-j \cdot 90^\circ}$; $c_3 = 2{,}5 \cdot e^{j \cdot 90^\circ}$.

6)

a) $c_1 = \frac{1}{2}$, $c_{-1} = \frac{1}{2}$

$c_k = 0, |k| \neq 1$

b) $c_1 = \frac{1}{2j}$, $c_{-1} = \frac{1}{2j}$

$c_k = 0, |k| \neq 1$

c) $c_1 = \frac{\sqrt{2}}{4}(1+j)$, $c_{-1} = \frac{\sqrt{2}}{4}(1+j)$

$c_k = 0, |k| \neq 1$

d) $c_{-3} = -\frac{1}{2j}$, $c_{-2} = \frac{1}{2}$, $c_2 = \frac{1}{2}$, $c_3 = \frac{1}{2j}$

$$c_k = 0, \begin{cases} |k| \neq 2 \\ |k| \neq 3 \end{cases}$$

e) $c_{-1} = -\frac{1}{4}$, $c_0 = \frac{1}{2}$, $c_1 = -\frac{1}{4}$

$$c_k = 0, \begin{cases} |k| \neq 0 \\ |k| \neq 1 \end{cases}$$

7)

a) $x(t) = \frac{A}{2} + \frac{A}{j\pi} \cdot \sum_{m=-\infty}^{\infty} \frac{1}{2m+1} e^{j(2m+1)\omega_0 t}$

b) $x(t) = \frac{A}{2} + \frac{2A}{\pi} \cdot \sum_{m=0}^{\infty} \frac{1}{2m+1} \left[sen(2m+1)\omega_0 t \right]$

8)

a) $x(t) = \frac{A}{2} + \frac{A}{\pi} \cdot \sum_{m=-\infty}^{\infty} \frac{(-1)^m}{2m+1} e^{j(2m+1)\omega_0 t}$

b) $x(t) = \frac{A}{2} + \frac{2A}{\pi} \cdot \sum_{m=0}^{\infty} \frac{(-1)^m}{2m+1} \cos\left[(2m+1)\omega_0 t\right]$

9)

a) $x(t) = \frac{2A}{j\pi} \cdot \sum_{m=-\infty}^{\infty} \frac{1}{2m+1} e^{j(2m+1)\omega_0 t}$

b) $x(t) = \frac{4A}{\pi} \cdot \sum_{m=0}^{\infty} \frac{1}{2m+1} sen\left[(2m+1)\omega_0 t\right]$

10)

a) $\delta_{T_0}(t) = \frac{1}{T_0} \cdot \sum_{k=-\infty}^{\infty} e^{jk\omega_0 t}$

b) $\delta_{T_0}(t) = \frac{1}{T_0} + \frac{2}{T_0} \cdot \sum_{k=1}^{\infty} \cos(k\omega_0 t)$

11)

a) $x(t) = \frac{A}{2} - \frac{2A}{\pi^2} \cdot \sum_{m=-\infty}^{\infty} \frac{1}{(2m+1)^2} e^{j(2m+1)\omega_0 t}$

b) $x(t) = \frac{A}{2} - \frac{4A}{\pi^2} \cdot \sum_{m=0}^{\infty} \frac{1}{(2m+1)^2} \cos[(2m+1)\omega_0 t]$

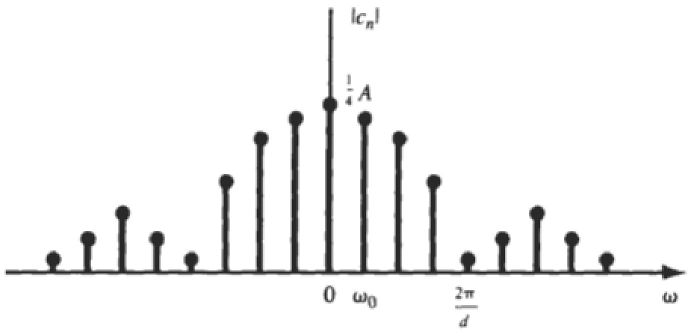
12)

a)

b) $x(t) = \frac{A}{2} + \frac{A}{\pi} \cdot \sum_{k=1}^{\infty} \frac{1}{k} sen(\omega_0 t)$

13)

a) $| c_k | = \frac{A}{4} \left| \frac{sen\left(\frac{k\pi}{4}\right)}{\left(\frac{k\pi}{4}\right)} \right|$



b) $| c_k | = \frac{A}{8} \left| \frac{sen\left(\frac{k\pi}{8}\right)}{\left(\frac{k\pi}{8}\right)} \right|$