$Um := 10\ V$ $\quad T := 10^{-3}\ s$ $\quad w := \frac{2 \cdot \pi}{T} = (6.28319 \cdot 10^{3})\ \frac{1}{s}$ $\quad j := \sqrt{-1}$

$R := 100\ ohm$ $\quad C1 := 0.5 \cdot 10^{-6}\ F$

$L := 0.005\ H$ $\quad C2 := 10^{-6}\ F$

$k := 1,3..5 = \begin{bmatrix} 1 \\ 3 \\ 5 \end{bmatrix}$ $\quad U(t) := \sum_{k} \frac{8 \cdot Um \cdot (-1)^{\frac{k-1}{2}}}{\pi^2 \cdot k^2} \cdot \sin(k \cdot w \cdot t)$

$k := 1$

$U1m_1 := \frac{8 \cdot Um \cdot (-1)^{\frac{k-1}{2}}}{\pi^2 \cdot k^2} = 8.10569\ V$

$XL_1 := k \cdot w \cdot L = 31.41593\ \Omega$

$XC1_1 := \frac{1}{k \cdot w \cdot C1} = 318.30989\ \Omega$

$XC2_1 := \frac{1}{k \cdot w \cdot C2} = 159.15494\ \Omega$

$Z1_1 := R - j \cdot XC1_1 = (100 - 318.30989\text{j})\ \Omega$

$Z2_1 := j \cdot XL_1 = 31.41593\text{j}\ \Omega$

$Z3_1 := -j \cdot XC2_1 = -159.15494\text{j}\ \Omega$

$I1m_1 := \frac{U1m_1}{Z1_1 + \frac{Z2_1 \cdot Z3_1}{Z2_1 + Z3_1}} = (0.02733 \angle 70.29208°)\ A$

$U2m_1 := \frac{Z2_1 \cdot Z3_1}{Z2_1 + Z3_1} \cdot I1m_1 = (1.06993 \angle 160.29208°)\ V$

$I2m_1 := \frac{U2m_1}{Z2_1} = (0.01148 + 0.03206\text{j})\ A$

$I3m_1 := \frac{U2m_1}{Z3_1} = (-0.00227 - 0.00633\text{j})\ A$

$k := 3$

$U1m_3 := \frac{8 \cdot Um \cdot (-1)^{\frac{k-1}{2}}}{\pi^2 \cdot k^2} = -0.90063\ V$

$XL_3 := k \cdot w \cdot L = 94.24778\ \Omega$

$$XC1_3 := \frac{1}{k \cdot w \cdot C1} = 106.1033\ \Omega$$

$$XC2_3 := \frac{1}{k \cdot w \cdot C2} = 53.05165\ \Omega$$

$$Z1_3 := R - j \cdot XC1_3 = (100 - 106.1033\text{j})\ \Omega$$

$$Z2_3 := j \cdot XL_3 = 94.24778\text{j}\ \Omega$$

$$Z3_3 := -j \cdot XC2_3 = -53.05165\text{j}\ \Omega$$

$$I1m_3 := \frac{U1m_3}{Z1_3 + \frac{Z2_3 \cdot Z3_3}{Z2_3 + Z3_3}} = (0.00362 \angle -113.73081°)\ A$$

$$U2m_3 := \frac{Z2_3 \cdot Z3_3}{Z2_3 + Z3_3} \cdot I1m_3 = (0.43991 \angle 156.26919°)\ V$$

$$I2m_3 := \frac{U2m_3}{Z2_3} = (0.00467 \angle 66.26919°)\ A$$

$$I3m_3 := \frac{U2m_3}{Z3_3} = (0.00829 \angle -113.73081°)\ A$$

$$k := 5$$

$$U1m_5 := \frac{8 \cdot Um \cdot (-1)^{\frac{k-1}{2}}}{\pi^2 \cdot k^2} = 0.32423\ V$$

$$XL_5 := k \cdot w \cdot L = 157.07963\ \Omega$$

$$XC1_5 := \frac{1}{k \cdot w \cdot C1} = 63.66198\ \Omega$$

$$XC2_5 := \frac{1}{k \cdot w \cdot C2} = 31.83099\ \Omega$$

$$Z1_5 := R - j \cdot XC1_5 = (100 - 63.66198\text{j})\ \Omega$$

$$Z2_5 := j \cdot XL_5 = 157.07963\text{j}\ \Omega$$

$$Z3_5 := -j \cdot XC2_5 = -31.83099\text{j}\ \Omega$$

$$I1m_5 := \frac{U1m_5}{Z1_5 + \frac{Z2_5 \cdot Z3_5}{Z2_5 + Z3_5}} = (0.00225 \angle 46.00817°)\ A$$

$$U2m_5 := \frac{Z2_5 \cdot Z3_5}{Z2_5 + Z3_5} \cdot I1m_5 = (0.0899 \angle -43.99183°)\ V$$

$$I2m_5 := \frac{U2m_5}{Z2_5} = (0.00057 \angle -133.99183°)\ A$$

$$I3m_5 := \frac{U2m_5}{Z3_5} = (0.00282 \angle 46.00817°)\ A$$

Діючі значення

$$I1_1 := \left|\frac{I1m_1}{\sqrt{2}}\right| = 0.01933\ A \qquad U2_1 := \left|\frac{U2m_1}{\sqrt{2}}\right| = 0.75656\ V$$

$$I1_3 := \left|\frac{I1m_3}{\sqrt{2}}\right| = 0.00256\ A \qquad U2_3 := \left|\frac{U2m_3}{\sqrt{2}}\right| = 0.31106\ V$$

$$I1_5 := \left|\frac{I1m_5}{\sqrt{2}}\right| = 0.00159\ A \qquad U2_5 := \left|\frac{U2m_5}{\sqrt{2}}\right| = 0.06357\ V$$

$$I1 := \sqrt{I1_1{}^2 + I1_3{}^2 + I1_5{}^2} = 0.01956\ A \qquad U2 := \sqrt{U2_1{}^2 + U2_3{}^2 + U2_5{}^2} = 0.82048\ V$$

$$U2_{сер\_по\_мод} := \frac{U2_1 + U2_3 + U2_5}{1.11} = 1.01909\ V$$

$$K_f := \frac{U2}{U2_{сер\_по\_мод}} = 0.80511 \qquad K_{sp} := \frac{U2_1}{U2} = 0.9221$$

$$K_a := \frac{|U2m_1|}{U2} = 1.30404 \qquad K_g := \frac{U2_3 + U2_5}{U2_1} = 0.49518$$

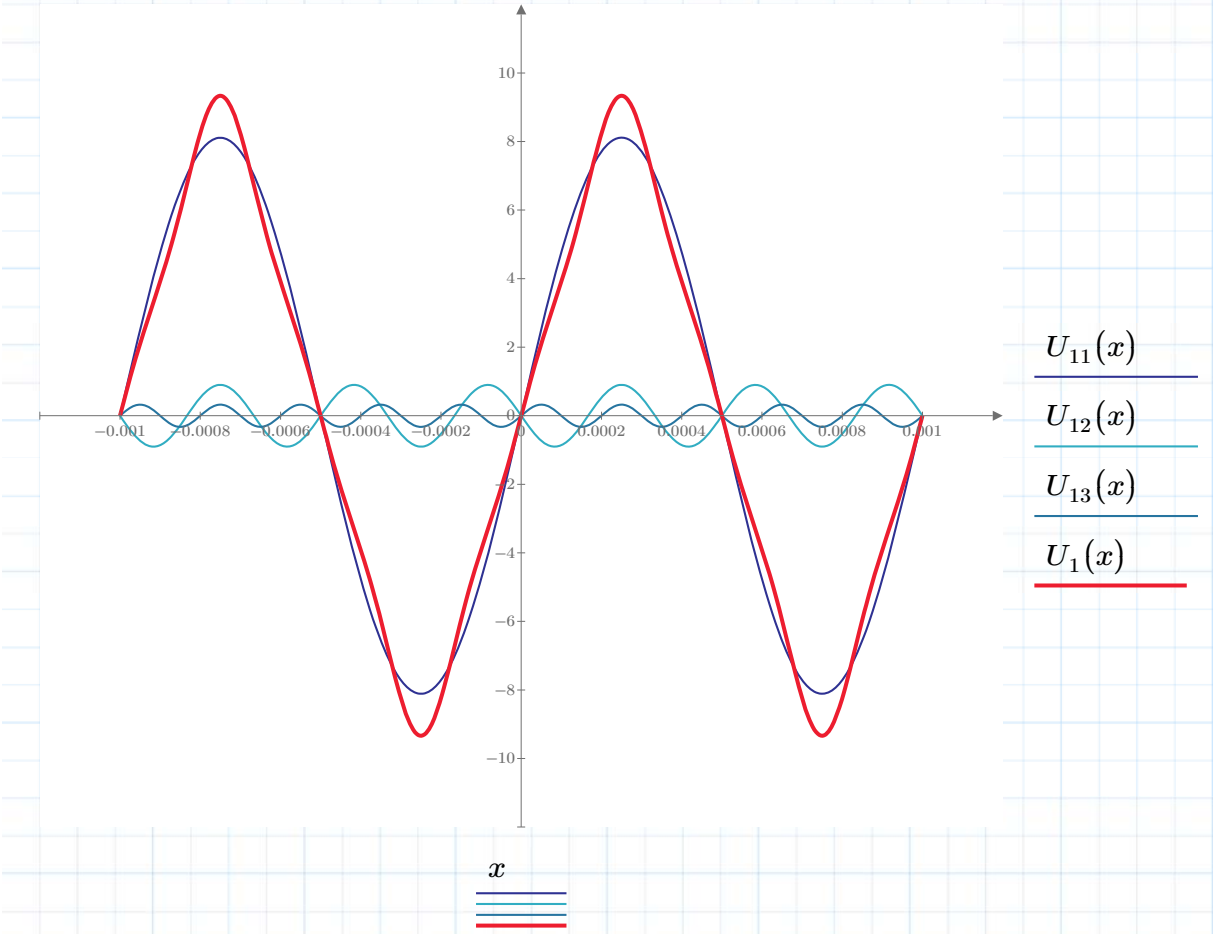
$w := 2000\ \pi$

$U_1(t) := 8.11 \cdot \sin(w \cdot t) - 0.901 \cdot \sin(3 \cdot w \cdot t) + 0.324 \cdot \sin(5 \cdot w \cdot t)$

$U_{11}(t) := 8.11 \cdot \sin(w \cdot t)$

$U_{12}(t) := -0.901 \cdot \sin(3 \cdot w \cdot t)$

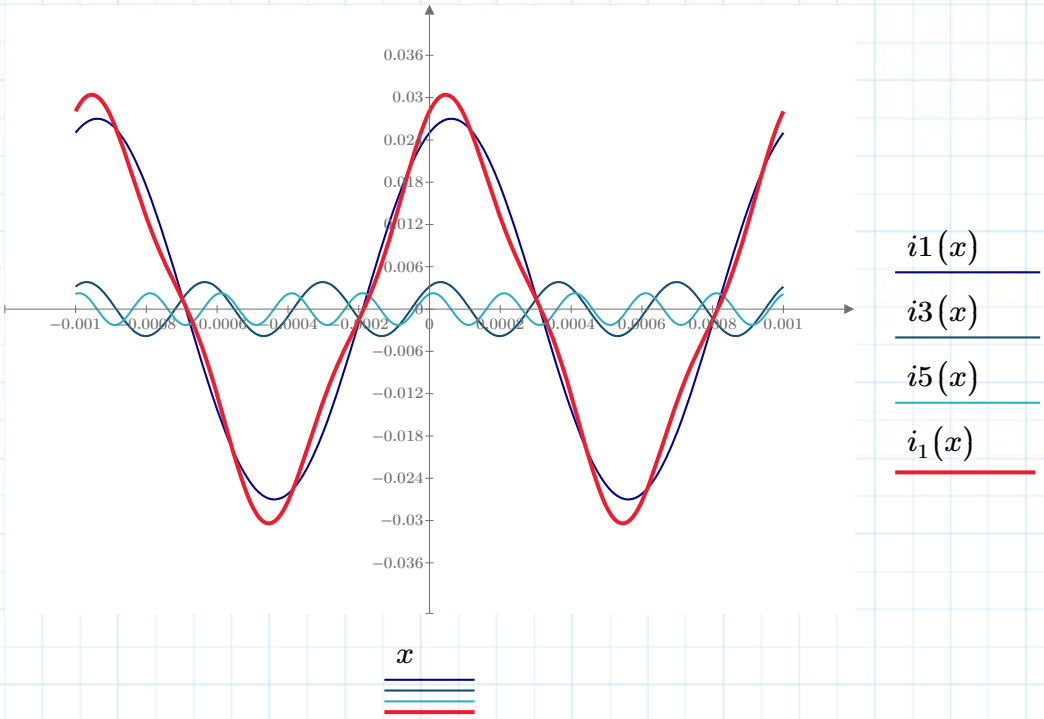
$U_{13}(t) := 0.324 \cdot \sin(5 \cdot w \cdot t)$



$i_1(t) := 0.027 \cdot \sin(w \cdot t + 70.305°) - 0.004 \cdot \sin(3 \cdot (w \cdot t + 66.295°)) + 0.002 \cdot \sin(3 \cdot (w \cdot t + 46.026°))$

$U_2(t) := 1.069 \cdot \sin(w \cdot t + 160.305°) - 0.44 \cdot \sin(3 \cdot (w \cdot t - (23.705)°)) + 0.09 \cdot \sin(3 \cdot (w \cdot t - 43.974°))$

$i1(t) := 0.027 \cdot \sin(w \cdot t + 70.3)$
$i3(t) := -0.00383 \cdot \sin(3 \cdot (w \cdot t + 66.3))$
$i5(t) := 0.00225 \cdot \sin(5 \cdot (w \cdot t + 48))$



$$u_2 1(t) := 1.07 \cdot \sin(w \cdot t + 160.3)$$
$$u_2 3(t) := -0.44 \cdot \sin(3 \cdot (w \cdot t - 23.7))$$
$$u_2 5(t) := 0.09 \cdot \sin(5 \cdot (w \cdot t - 44))$$