$$E := \frac{110}{\sqrt{3}} \cdot 10^3$$

$Ik1 := 1000$ $\quad Ik2 := 5000$ $\quad Ik3 := 7000$

$Ta1 := 0.02$ $\quad Ta2 := 0.1$ $\quad Ta3 := 0.05$

$$I(t) := Ik1 \cdot e^{\frac{-t}{Ta1}} + Ik2 \cdot e^{\frac{-t}{Ta2}} + Ik3 \cdot e^{\frac{-t}{Ta3}} \qquad \omega := 2 \cdot \pi \cdot 50$$

$$Ta = \frac{X}{\omega \cdot R} = \frac{L}{R} \qquad \omega \cdot Ta = \frac{X}{R} = -tan\Phi \qquad \Phi = -atan(\omega \cdot Ta)$$

$$j := \sqrt{-1}$$

$$Ik1' := Ik1 \cdot (\cos(-\mathrm{atan}(\omega \cdot Ta1)) + j \cdot \sin(-\mathrm{atan}(\omega \cdot Ta1))) = 157.177 - 987.57\mathrm{i}$$

$$Ik2' := Ik2 \cdot (\cos(-\mathrm{atan}(\omega \cdot Ta2)) + j \cdot \sin(-\mathrm{atan}(\omega \cdot Ta2))) = 159.074 - 4.997\mathrm{i} \cdot 10^3$$

$$Ik3' := Ik3 \cdot (\cos(-\mathrm{atan}(\omega \cdot Ta3)) + j \cdot \sin(-\mathrm{atan}(\omega \cdot Ta3))) = 444.734 - 6.986\mathrm{i} \cdot 10^3$$

$$Ik' := Ik1' + Ik2' + Ik3' = 760.985 - 1.297\mathrm{i} \cdot 10^4 \qquad Ik := |Ik'| = 1.299 \cdot 10^4$$

$$Ta.экв := \frac{1}{Ik} \cdot (Ik1 \cdot Ta1 + Ik2 \cdot Ta2 + Ik3 \cdot Ta3) = 0.067$$

$$I'(t) := Ik \cdot e^{\frac{-t}{Ta.экв}}$$

$$Z1 := \frac{E}{Ik1'} = 9.982 + 62.719\mathrm{i}$$

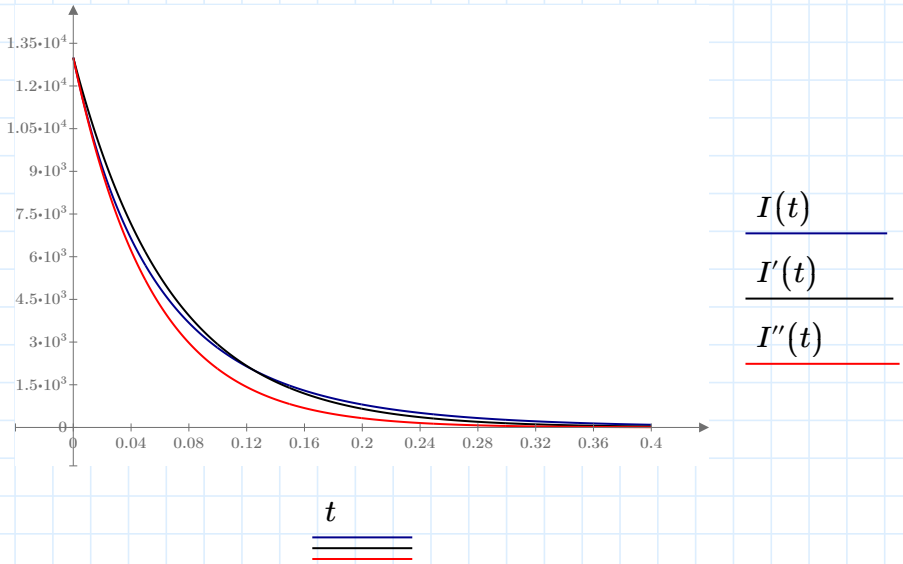
$$Z2 := \frac{E}{Ik2'} = 0.404 + 12.695\mathrm{i}$$

$$Z3 := \frac{E}{Ik3'} = 0.576 + 9.054\mathrm{i}$$

$$Zэ := \left(Z1^{-1} + Z2^{-1} + Z3^{-1}\right)^{-1} = 0.286 + 4.879\mathrm{i}$$

$$Ik'' := \frac{E}{Zэ} = 760.985 - 1.297\mathrm{i} \cdot 10^4 \qquad |Ik''| = 1.299 \cdot 10^4$$

$$Ta.экв2 := \frac{1}{\omega} \cdot \frac{-\mathrm{Im}(Ik'')}{\mathrm{Re}(Ik'')} = 0.054 \qquad I''(t) := |Ik''| \cdot e^{\frac{-t}{Ta.экв2}} \qquad t := 0, 0.0001 .. 0.4$$


1.35·10^4
1.2·10^4
1.05·10^4
9·10^3
7.5·10^3
6·10^3
4.5·10^3
3·10^3
1.5·10^3
0
0
0.04
0.08
0.12
0.16
0.2
0.24
0.28
0.32
0.36
0.4
I(t)
I′(t)
I″(t)
t