$R=1\,\Omega$ $L=1H$

$C=1F$

$v_i(t)$ $i(t)$ $V_c(t)$
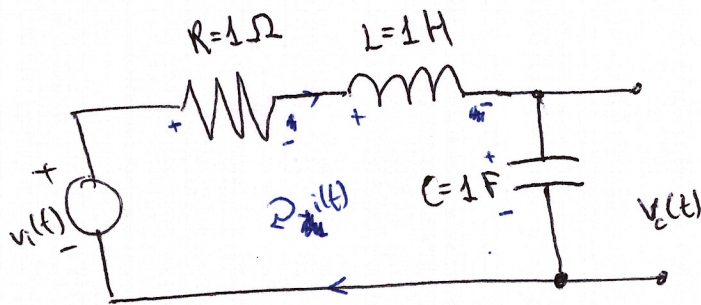
2. $v_i(t) = \text{sen}(2\pi t - \frac{\pi}{3}) - 2\cos(2\pi t) + \cos(\pi(t-2)) + \cos(50 at - \pi/3)$

$v_i(t) = e^{j2\pi t} \cdot e^{-j(+\frac{\pi}{3} + \frac{\pi}{2})} - 2e^{j2\pi t} = \left(e^{-j\frac{5}{6}\pi} - 2 \right)e^{j2\pi t}$
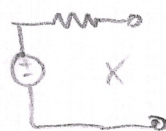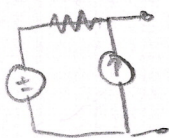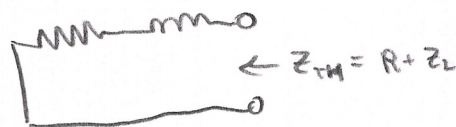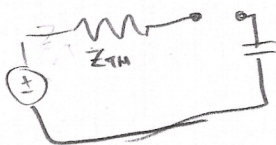
$\left(e^{-j\frac{5}{6}\pi} - 2 \right)$

$Z_R = 1$

$Z_L = j \cdot 2\pi \cdot 1 = j2\pi$

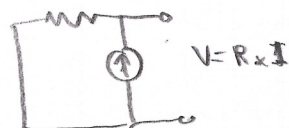$Z_c = \frac{1}{j\omega C} = \frac{1}{j \cdot 2\pi \cdot 1} = -j\frac{1}{2\pi}$

$v_i(t) = v_R + v_L + v_c = i + i \cdot j2\pi + i \cdot (-j\frac{1}{2\pi}) = (j2\pi - j\frac{1}{2\pi} + 1) i \Rightarrow$

$i = \dfrac{V_i}{\frac{4\pi^2 - 1}{2\pi} j + 1}$

$V_c = i \cdot Z_c = -j\frac{1}{2\pi} \cdot \dfrac{e^{-j\frac{5}{4}\pi} - 2}{\frac{4\pi^2-1}{2\pi} j + 1}$

Z_{TH}

$\leftarrow Z_{TH} = R + Z_L$

$\rightarrow V = V_g$

$V = R \times I$

$V = V_g + R \cdot I$