$$\frac{1}{s^2LC + sCR + 1} = \frac{1}{\frac{s^2}{4} + s + 1}$$

$$V_o(s) = \left(\frac{2}{s^2+4}\right)\frac{1}{s^2/4 + s + 1} + (-1)\frac{1}{s^2/4+s+1} + \frac{5}{s} - \frac{5}{s}\frac{1}{s^2/4+s+1}$$

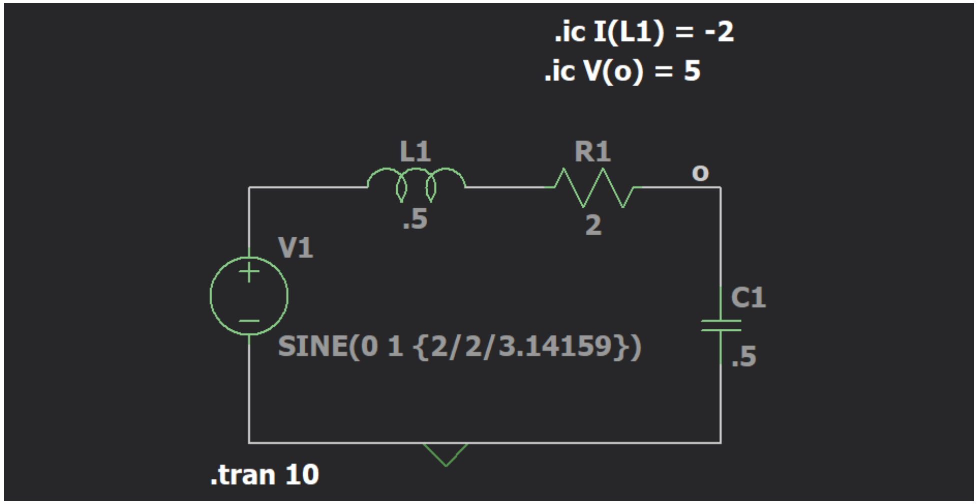
PFE

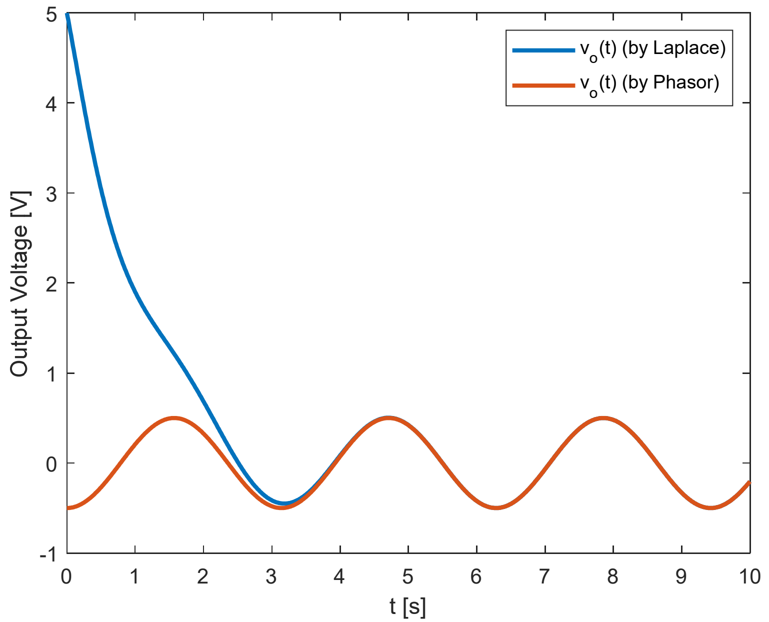
PFE or manipulate

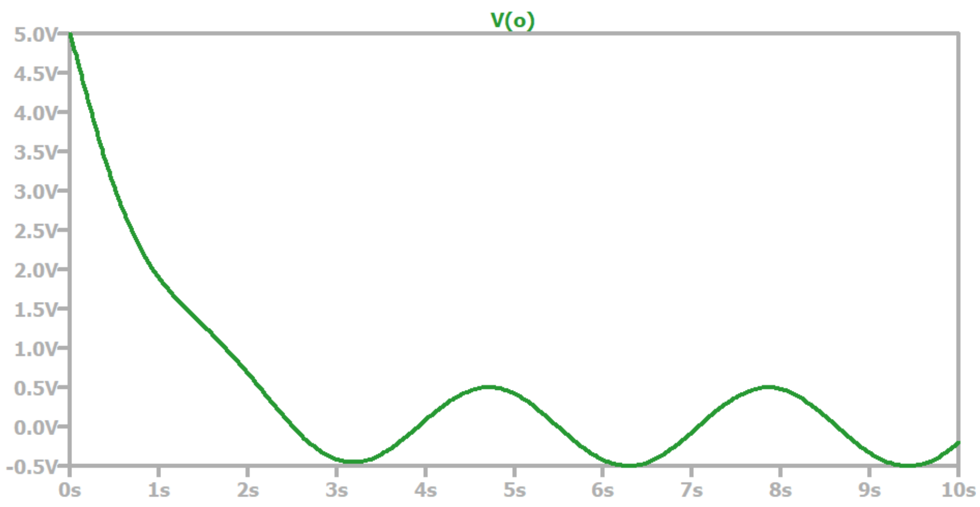
tables

PFE

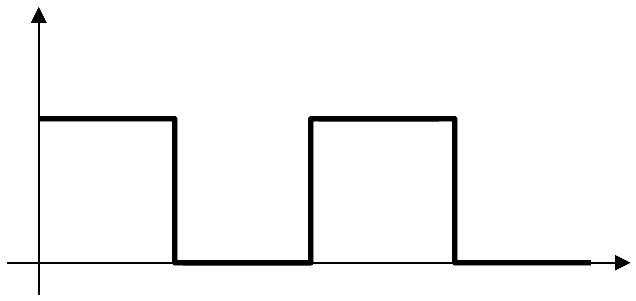
Comparison to Simulation







Laplace Transform of Periodic Signals



Transfer Functions

$$H(s) = \frac{\sum_{i=0}^{M} a_i s^i}{\sum_{i=0}^{N} b_i s^i} = \frac{(s - z_1)(s - z_2)\cdots(s - z_M)}{(s - p_1)(s - p_2)\cdots(s - p_N)}$$

factoring

polynomial form   factored   pole-zero form

roots of numerator, z_i, are called "zeros"
- values of s where $H(s) = 0$

roots of denominator, p_i, are called "poles"
- values of s where $H(s) \to \infty$

if all a_i are real, all z_i are either real or complex-conjugate pairs

" b_i " " all p_i are " "

poles define "form" of $f(t)$, zeros will define coefficients of terms

$V_o(s) = H(s)\, V_I(s)$ { output has terms from $H(s)$ & terms from $V_I(s)$ }