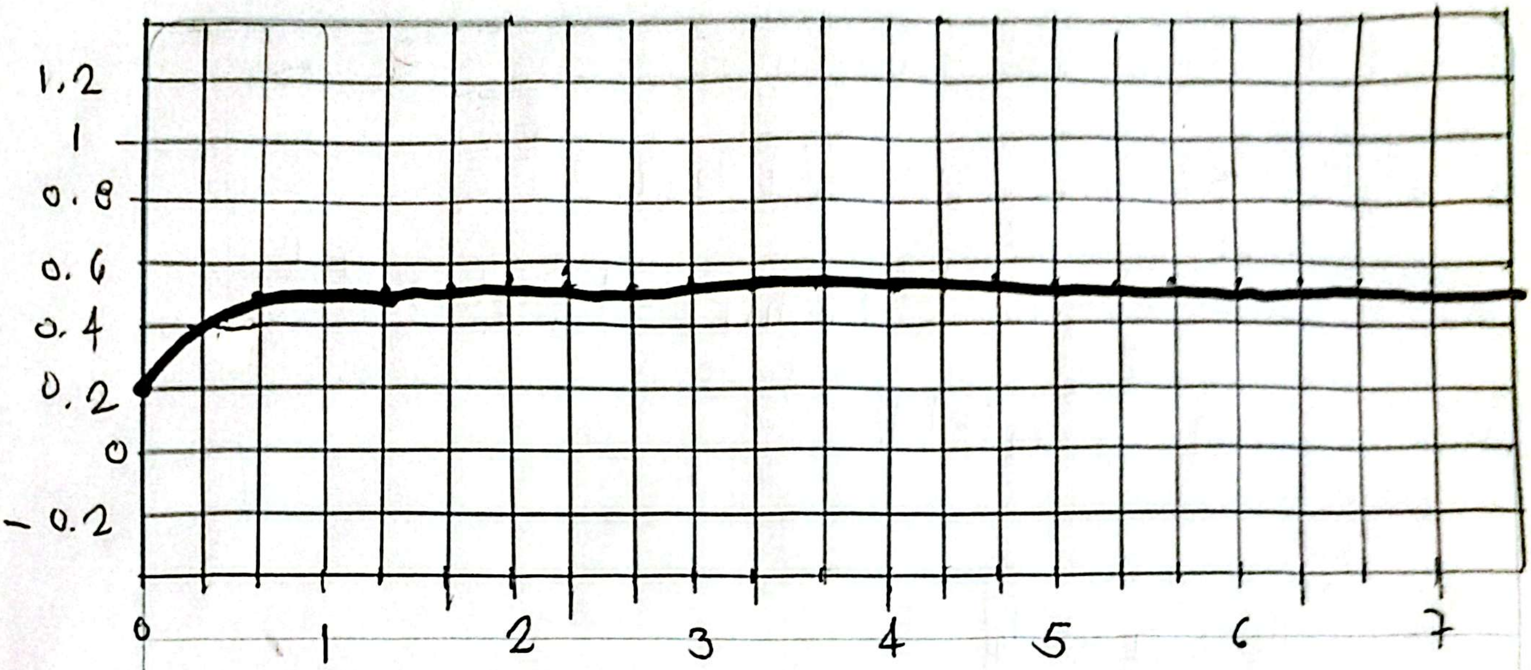
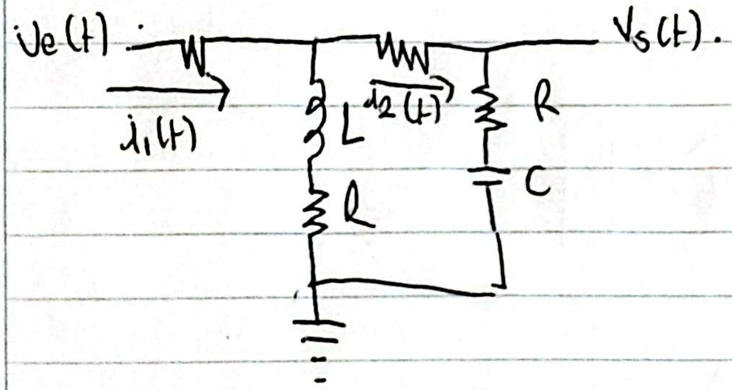
23/09/25.





Ecuaciones Principales

$$Ve(t) = Ri_2(t) + L\frac{d[(i_1(t) - i_2(t)]}{dt} + R[i_1(t) - i_2(t)]$$

$$L\frac{d[i_1(t) - i_2(t)]}{dt} + R[i_1(t) - i_2(t)] = Ri_2(t) + Ri_2(t) + \frac{1}{C}\int i_2(t)dt$$

$$Vs(t) = Ri_2(t) + \frac{1}{C}\int i_2(t)dt.$$

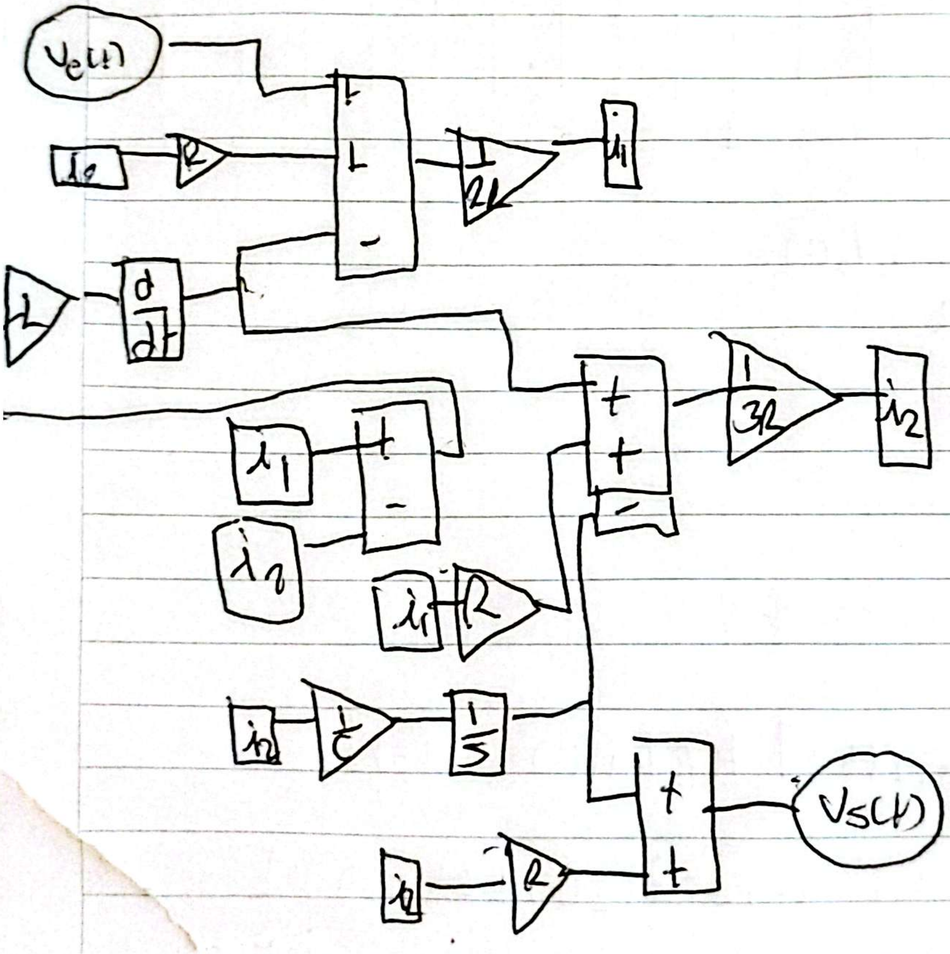
$$Vs(t) = Ri_2(t) + \frac{1}{C}\int i_2(t)dt.$$

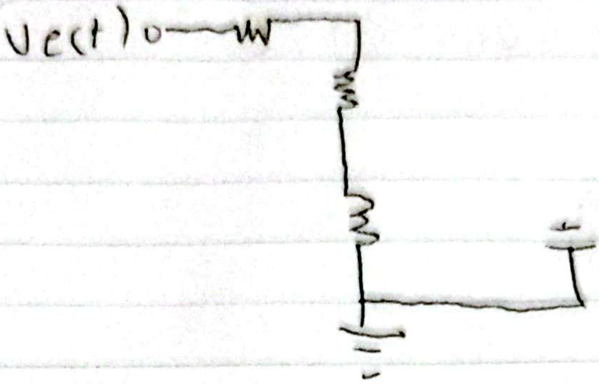
Modelo de ecuaciones integro-diferenciales

$$i_1(t) = \left[V_e(t) - L\frac{d\left[i_1(t) - i_2(t)\right]}{dt} + R i_2(t)\right]\frac{1}{R_2}$$

$$\cancel{i_2(t) = \left[\frac{L d\, i_1(t) - i_2(t)}{T}\right] + R i_1(t) - \frac{1}{C}\int i_2(t)\,dt\,\Big]\frac{1}{3R}}$$

$$V_s(t) = R i_2(t) + \frac{1}{C}\int i_2(t)\,dt$$





transformada de laPlace

$$Ve(s) = R I_1(s) + Ls[I_1(s) - I_2(s)] + R[I_1(s) - I_2(s)]$$
$$Ls[I_1(s) - I_2(s)] + R[I_1(s) - I_2(s)] = R I_2(s) + R I_2(s)] + \frac{I_2}{Cs}$$
$$vs(s) = R I_2(s) + \frac{I_2(s)}{Cs} = \frac{CRs+1}{Cs} I_2(s).$$

Procedimiento algebraico

$$Ve(s) = (R + (Ls+R)) I_1(s) - (Ls+R) I_2(s)$$
$$= (Ls + 2R) I_1(s) - (Ls+R) I_2(s)$$
$$Ls I_1(s) - Ls I_2(s) + R I_1(s) - R I_2(s) = 2R I_2(s) + \frac{I_2(s)}{Cs}$$
$$Ls I_1(s) + R I_1(s) = 3R I_2(s) + Ls I_2(s) + \frac{I_2(s)}{Cs}$$

$$(Ls + R) I_1(s) = (3R + Ls + \frac{1}{Cs}) I_2(s)$$
$$I_1(s) = \frac{3CRs + (Ls^2 + 1)}{Cs(Ls+R)} I_2(s) = \frac{CLs^2 + 3CRs + 1}{Cs(Ls+R)} I_2(s)$$

$$Ve(s) = \frac{(Ls+2R)(CLs^2 + 3CRs + 1)}{Cs(Ls+R)} I_2(s) - (Ls+R) I_2(s)$$
$$= \left[\frac{(Ls+2R)(CLs^2 + 3CR + 1) - Cs(Ls+R)(Ls+R)}{Cs(Ls+R)}\right] I_2(s).$$