3) $I_S \cdot R_S + V_Z = V_{in}$ $\quad I_{out} \cdot R_L + I_S \cdot R_S = V_{in}$ $\quad$ no limiar, $I_Z = 0$

$I_S(R_L + R_S) = V_{in}$ $\quad I_{out} = I_S$

$I_S R_S + V_Z = I_S(R_L + R_S)$

$\frac{V_Z}{R_L} = I_S \rightarrow I_S = 8\,mA \rightarrow V_{in} = I_S R_S + V_Z$

$\boxed{V_{in} = 14,64V}$

4) $V_{out} = V_Z + \text{"xx"} = V_{Z_{ENER}} + r_Z I_Z + \text{"xx"}$

$V_{out} = 7 + 0,1.$

$\boxed{V_{out} = 7,1V}$

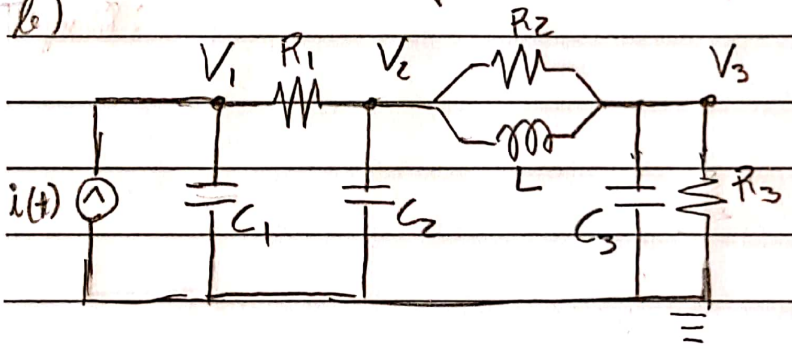
$R = \frac{V_{out} - V_Z}{I_Z} = \frac{7,1 - 2,1}{1}$

$\boxed{R = 5K\Omega}$

↳ Errado!

Ez 22/09 - Henrique Kuhlmann 10772672

b)



$V \sim S_g h \quad \frac{1}{L} \sim \frac{a}{SL}$

$\frac{1}{R} \sim \frac{1}{S_g R_L}$

$C \sim \frac{A}{S_g}$

c) 1) $V_1(C_1 D + 1/R_1) - V_2/R_1 = i_1(t)$

2) $V_2(C_2 D + 1/R_1 + 1/R_2 + 1/LD) - V_1/R_1 - V_3(1/R_2 + 1/LD) = 0$

3) $V_3(C_3 D + 1/R_3 + 1/R_2 + 1/LD) - V_2(1/R_2 + 1/LD) = 0$

1) $A_1 \dot{h}_1 + h_1/R_1 - h_2/R_1 = Q_i(t)$

2) $A_2 \dot{h}_2 + h_2(1/R_1 + 1/R_2) + \frac{ga}{l}\int h_2 dt - h_1/R_1 - h_3/R_3 - \frac{ga}{l}\int h_3 dt = 0$

3) $A_3 \dot{h}_3 + h_3(1/R_2 + 1/R_3) + \frac{ga}{l}\int h_3 dt - h_2/R_2 - \frac{ga}{l}\int h_2 dt = 0$

a)