

$$P_e^{b_4} = -AV_4$$

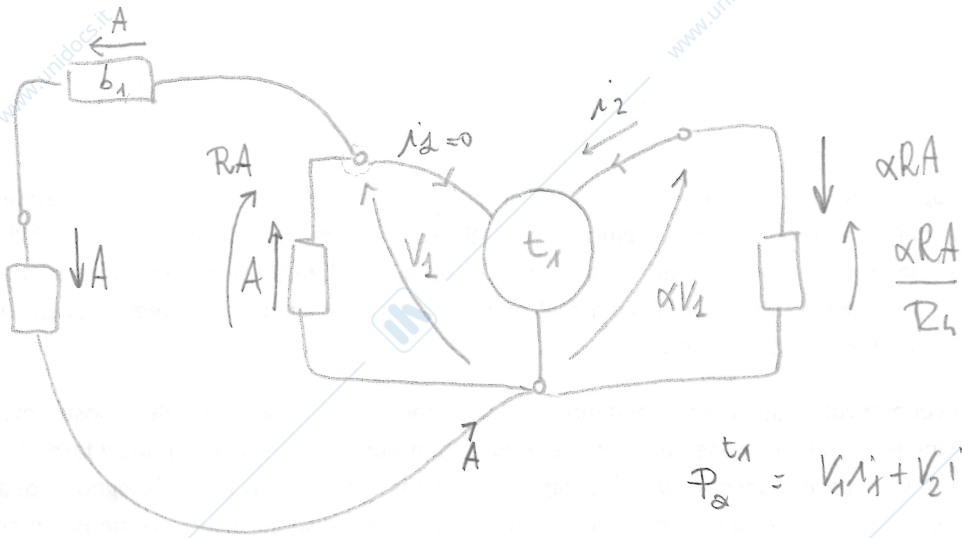
$$V_4 - (R_2(-A)) - E + R_3 A = 0$$

$$V_4 = E - R_3 A - R_2 A$$

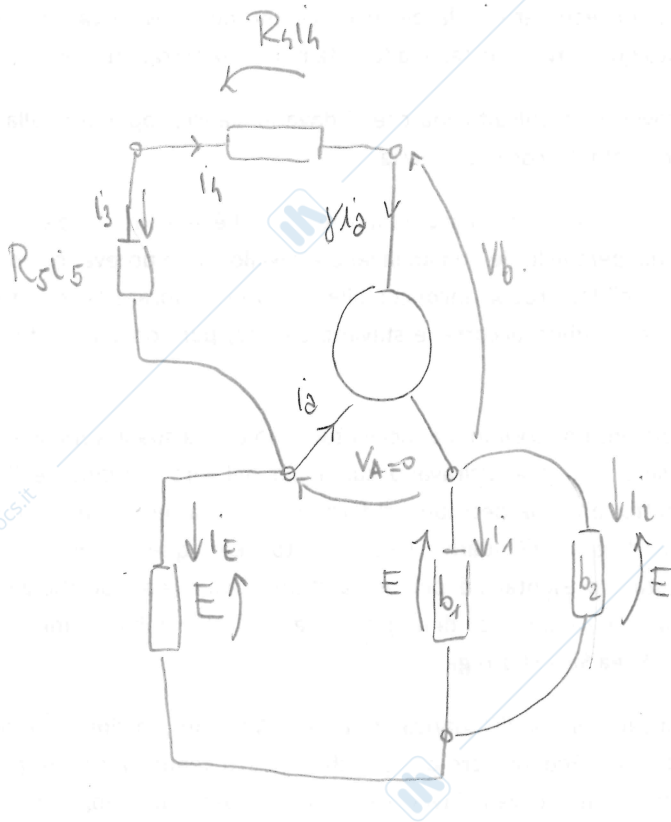
$$-A(E - R_3 A - R_2 A) = 0$$

$$\Leftrightarrow E = (R_2 + R_3)A$$

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$$P_{\alpha}^{t_1} = V_1 i_1 + V_2 i_2 = \phi + \alpha RA \cdot \left(-\frac{\alpha RA}{R_4} \right) = -\frac{\alpha^2 RA^2}{R_4}$$



$$i_1 = g_1 V_1 = g_1 E$$

$$i_2 = g_2 V_2 = g_2 E$$

$$i_2 + i_b = (1+\gamma) i_a = i_1 + i_2 = (g_1 + g_2) E$$

$$i_a = \frac{(g_1 + g_2) E}{1+\gamma}$$

$$P_e = (g_1 + g_2) E^2$$

$$i E + i_a + \gamma i_a = \phi \quad -i E = (1+\gamma) \frac{(g_1 + g_2) E}{1+\gamma}$$