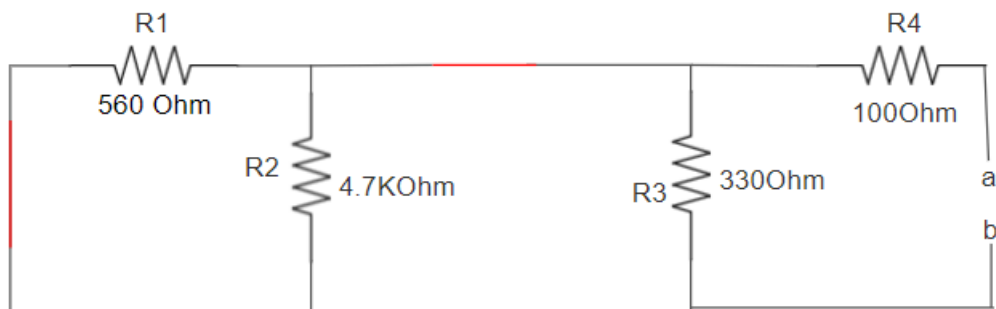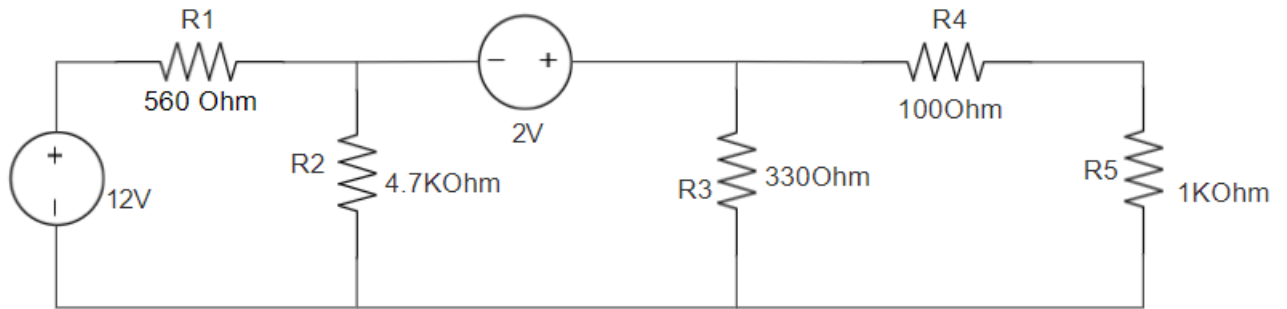UNIVERSIDAD DE LAS FUERZAS ARMADAS ESPE
Departamento de eléctrica y electrónica
Laboratorio de introducción a circuitos

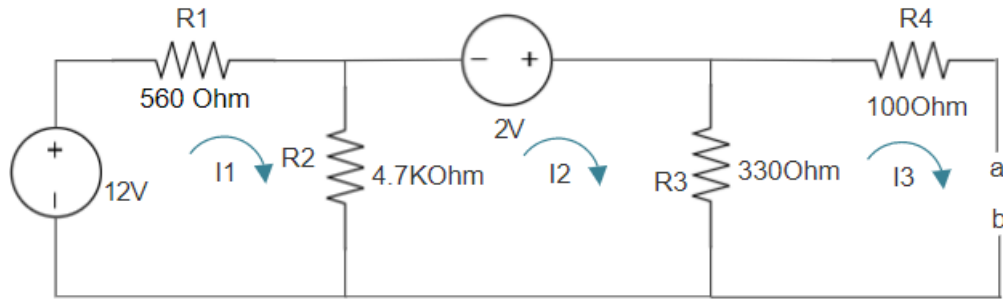

$$RTh = R_1 || R_2 || R_3 + R_4$$

$$RTh = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}} + R_4$$

$$RTh = \frac{1}{\frac{1}{560} + \frac{1}{4700} + \frac{1}{330}} + 100$$

$$RTh = \frac{1}{0{,}005028} + 100$$

$$RTh = 198{,}85 + 100$$

$$RTh = 298{,}85\,\Omega$$

$$12 - R_1 I_1 - R_2(I_1 - I_2) = 0$$
$$12 - 560 I_1 - 4700(I_1 - I_2) = 0$$
$$12 - 5260 I_1 + 4700 I_2 = 0$$
$$ECUACION1$$
$$5620 I_1 - 4700 I_2 = 12$$
$$2 - R_3(I_2 - I_3) - R_2(I_2 - I_1) = 0$$
$$2 - 330(I_2 - I_3) - 4700(I_2 - I_1) = 0$$
$$2 - 5030 I_2 + 330 I_3 + 4700 I_1 = 0$$
$$ECUACION2$$
$$-4700 I_1 + 5030 I_2 - 330 I_3 = 2$$
$$R_3(I_3 - I_2) - R_4 I_3 = 0$$
$$-330(I_3 - I_2) - 100 I_3 = 0$$
$$ECUACION3$$
$$330 I_2 - 430 I_3 = 0$$
$$I_1 = 0{,}02198 A$$
$$I_2 = 0{,}02204 A$$
$$I_3 = 0{,}01691 A$$
$$VTh = V_a - V_b$$
$$V_a = I_3 * R_4 + R_3(I_2 - I_3)$$
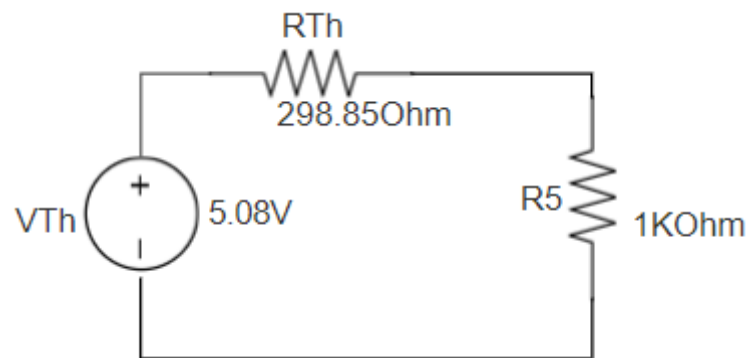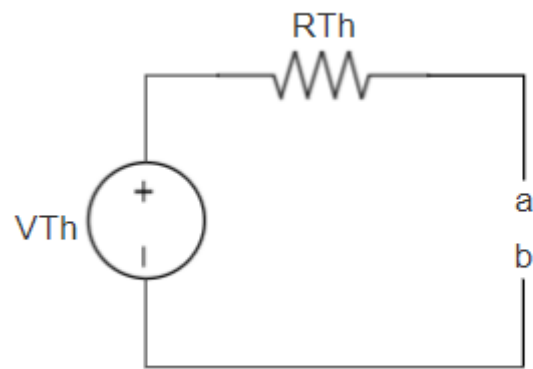$$V_a = (0{,}01691 * 100) + (330 * 0{,}00513)$$
$$V_a = 3{,}3839 V$$
$$V_b = R_3(I_3 - I_2)$$
$$V_b = 330 * -0{,}00513$$
$$V_b = -1{,}6929 V$$
$$VTh = 3{,}2839 - (-1{,}6929)$$
$$VTh = 5{,}0768 V$$

$$I = \frac{V}{R}$$

$$I = \frac{5{,}08}{1298{,}85}$$

$$I = 0{,}003850A$$

$$VR_5 = IR_5$$

$$VR_5 = 0{,}003850 * 1000$$

$$VR_5 = 3{,}85V$$