CALCULOS ANALITICOS

$\boldsymbol{R_L = 220\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 0{,}22} = 10{,}5633mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 10{,}5633\mathrm{mA} * 0{,}22\mathrm{k\Omega} = 2.3239\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 2.3239\mathrm{V} * 10{,}5633\mathrm{mA} = 24{,}54\mathrm{mW} = 0{,}02454\mathrm{W}$$

$\boldsymbol{R_L = 470\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 0{,}47} = 8{,}982mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 8{,}982\mathrm{mA} * 0{,}47\mathrm{k\Omega} = 4{,}2215\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 4{,}2215\mathrm{V} * 8{,}982\mathrm{mA} = 37{,}91\mathrm{mW} = 0{,}03791\mathrm{W}$$

$\boldsymbol{R_L = 680\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 0{,}68} = 7{,}9787mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 7{,}9787\mathrm{mA} * 0{,}68\mathrm{k\Omega} = 5{,}4255\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 5{,}4255\mathrm{V} * 7{,}9787\mathrm{mA} = 43{,}28\mathrm{mW} = 0{,}04328\mathrm{W}$$

$\boldsymbol{R_L = 820\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 0{,}82} = 7{,}4257mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 7{,}4257\mathrm{mA} * 0{,}82\mathrm{k\Omega} = 6{,}0891\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 6{,}0891\mathrm{V} * 7{,}4257\mathrm{mA} = 45{,}21\mathrm{mW} = 0{,}04521\mathrm{W}$$

$\boldsymbol{R_L = 1000\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 1} = 6{,}8181mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 6{,}8181\mathrm{mA} * 1\mathrm{k\Omega} = 6{,}8181\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 6{,}8181\mathrm{V} * 6{,}8181\mathrm{mA} = 46{,}48\mathrm{mW} = 0{,}04648\mathrm{W}$$

$\boldsymbol{R_L = 1500\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 1{,}5} = 5{,}55mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 5{,}55\mathrm{mA} * 1{,}5\mathrm{k\Omega} = 8{,}33\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 8{,}33\mathrm{V} * 5{,}55\mathrm{mA} = 46{,}29\mathrm{mW} = 0{,}04629\mathrm{W}$$

$\boldsymbol{R_L = 1800\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 1{,}8} = 5mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 5\mathrm{mA} * 1{,}8\mathrm{k\Omega} = 9\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 9\mathrm{V} * 5\mathrm{mA} = 45\mathrm{mW} = 0{,}045\mathrm{W}$$

$\boldsymbol{R_L = 2200\Omega}$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 2{,}2} = 4{,}4117mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 4{,}4117\mathrm{mA} * 2{,}2\mathrm{k\Omega} = 9{,}7057\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 9{,}7057\mathrm{V} * 4{,}4117\mathrm{mA} = 42{,}81\mathrm{mW} = 0{,}04281\mathrm{W}$$

$$\underline{\boldsymbol{R_L = 3900\Omega}}$$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 3{,}9} = 2{,}9411mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 2{,}9411\mathrm{mA} * 3{,}9\mathrm{k\Omega} = 11{,}4705\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 11{,}4705\mathrm{V} * 2{,}9411\mathrm{mA} = 33{,}73\mathrm{mW} = 0{,}03373\mathrm{W}$$

$$\underline{\boldsymbol{R_L = 4700\Omega}}$$

$$\mathrm{I} = \frac{V}{\mathrm{R_S} + \mathrm{R_L}} => I = \frac{15}{1{,}2 + 4{,}7} = 2{,}5424mA$$

$$\mathrm{V_{RL}} = \mathrm{I} * \mathrm{RL} => \mathrm{V_{RL}} = 2{,}5424\mathrm{mA} * 4{,}7\mathrm{k\Omega} = 11{,}9493\mathrm{V}$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 11{,}9493\mathrm{V} * 2{,}5424\mathrm{mA} = 30{,}38\mathrm{mW} = 0{,}03038\mathrm{W}$$

CALCULOS CON LOS VALORES EXPERIMENTALES

$$P = V * I$$

$$\mathrm{P} = \mathrm{V} * \mathrm{I} = 2{,}32\mathrm{V} * 10{,}6\mathrm{mA} = 0{,}03373\mathrm{W}$$

RL	*Corrientes medidas mA*	*Voltaje medido V*	*Potencia calculada experimentalmente W*	*Potencia calculada teoricamente W*
220	10.6	2.32	0.02459	0.02454
470	8.98	4.22	0.03789	0.03791
680	7.98	5.43	0.04333	0.04328
820	7.43	6.09	0.04524	0.04521
1000	6.82	6.82	0.04651	0.04648
1500	5.56	8.33	0.04631	0.04629
1800	5	9	0.045	0.045
2200	4.41	9.71	0.04282	0.04281
3900	2.94	11.5	0.03381	0.03373
4700	2.54	11.9	0.03026	0.03038