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# POWER MATCHING

Since resistances cannot be negative we conclude that for the maximum power to be produced we must set  $R = r$ . You will test this in an experimental activity.

Here are some results for you to try out. Find the total power in the external circuit (load) using  $I^2R$  and then add this to the power lost in the internal circuit using  $I^2r$

emf E (V)	12
Internal res r ( $\Omega$ )	10

Load res R ( $\Omega$ )	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00
Current I (A)	1.20	1.00	0.86	0.75	0.67	0.60	0.55	0.50	0.46	0.43	0.40
Power PL in load (W)											
Power lost in the internal circuit (W)											
Total Power (W)											

Plot two graphs, ONE of TOTAL POWER against LOAD RESISTANCE one of LOAD POWER against LOAD RESISTANCE (don't use excel use a sheet of graph paper!)