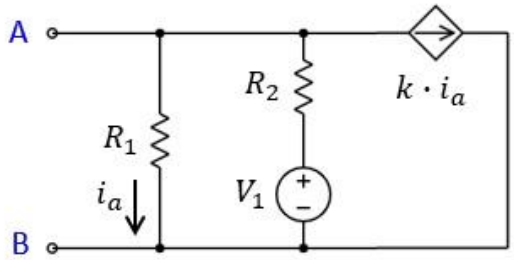
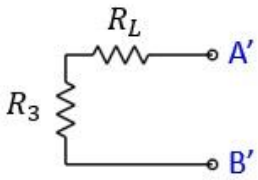
Q1

(a) Consider the circuit below. Find the Thevenin equivalent resistance R_{Th} between A and B.



R1:	3 Ω
R2:	1 Ω
V1:	6 V
k:	2 A/A
R3:	1 Ω

(b) Attach the circuit on the right to the circuit above (A' connected to A and B' connected to B). What is the value of R_L such that the power received by R_L is maximized?

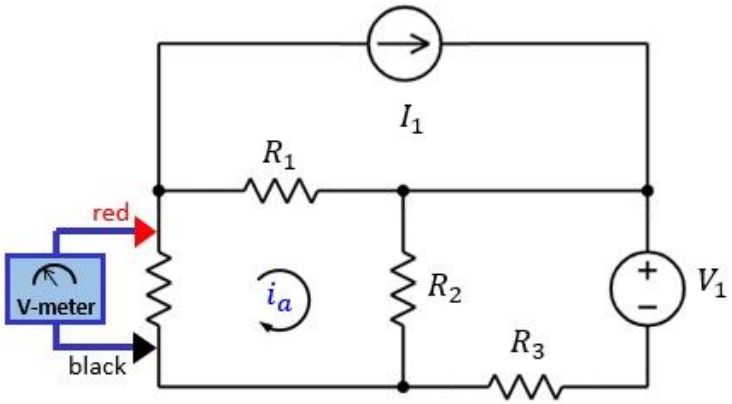


Q2

Consider the circuit below. For one of the resistors, you are not given its value. The volt-meter is ideal.

(a) The volt-meter reading is X. Find the mesh current i_a.

(b) We double both I_1 and V_1 and keep all the other circuit elements the same. What is i_a now?



R1:	2 Ω
R2:	2 Ω
R3:	1 Ω
I1:	3 A
V1:	-5 V
X:	-4 V