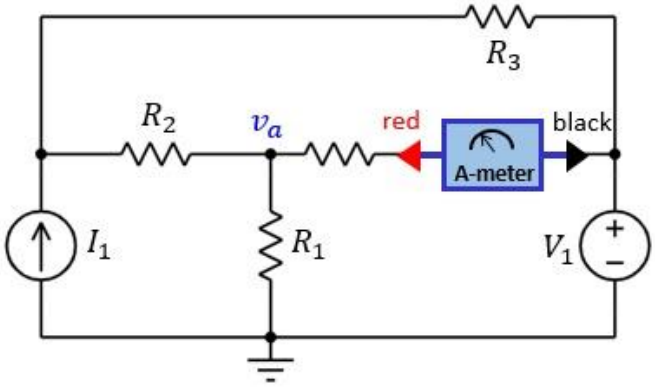
Q1

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

(a) The ammeter reading is X. Find the node voltage v_a.

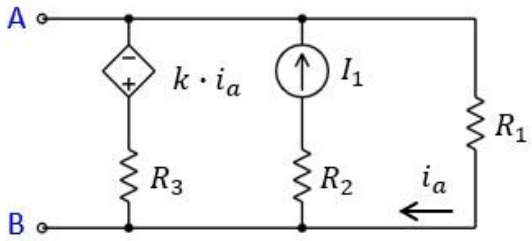
(b) We flip the direction of both I_1 and V_1 and keep all the other circuit elements the same. What is v_a now?



R1:	2 Ω
R2:	1 Ω
R3:	2 Ω
V1:	6 V
I1:	1 A
X:	1 A

Q2

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



R1:	3 Ω
R2:	2 Ω
R3:	6 Ω
I1:	5 A
k:	3 V/A

(b) We double the value of I_1 and all other circuit elements remain the same. Find the value of R_L to be connected between A and B such that the power received by R_L is maximized.