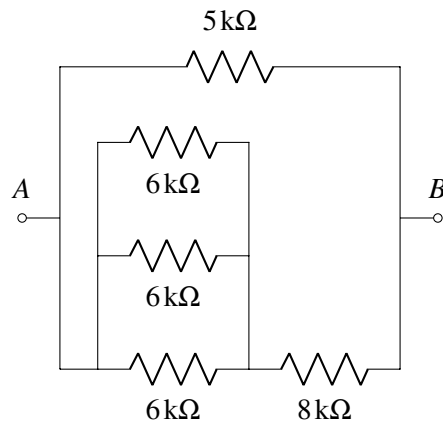


1. Series and Parallel Combinations

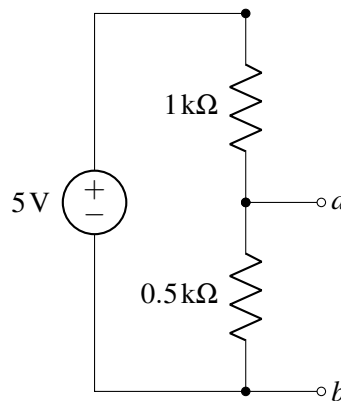
For the resistor network shown below, find an equivalent resistance between the terminals A and B using the resistor combination rules for series and parallel resistors.



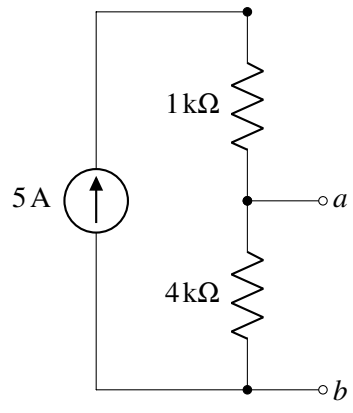
2. Equivalence

Find the Thévenin and Norton equivalents across terminals a and b for the circuits given below.

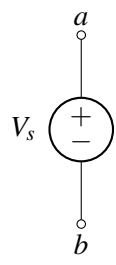
(a)



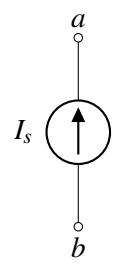
(b)



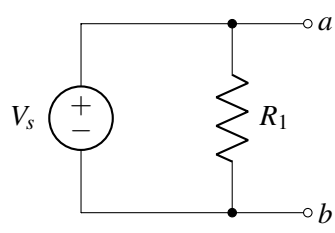
(c)



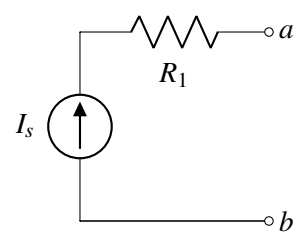
(d)



(e)

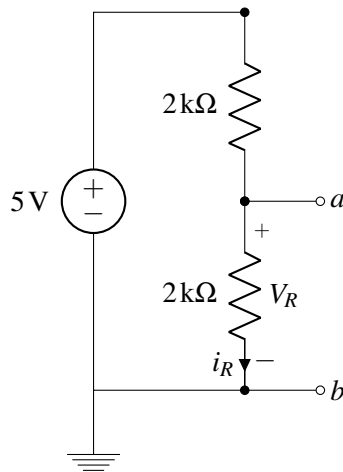


(f)

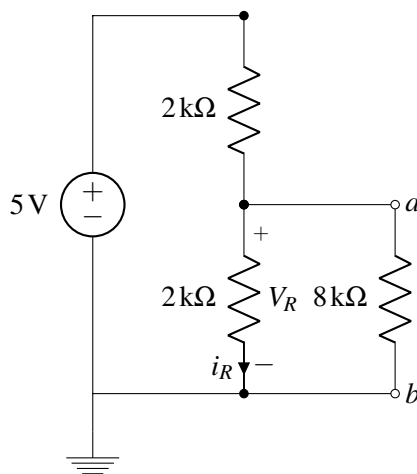


3. Why Bother With Thévenin Anyway?

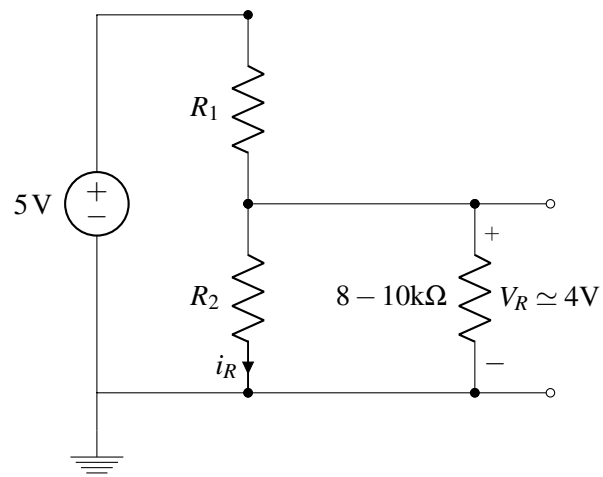
- (a) Find a Thévenin equivalent for the circuit shown below.



- (b) What happens to the output voltage V_{ab} if we attach a load of $8\text{ k}\Omega$ to the output as depicted in the circuit below. Use your Thévenin equivalent from part (a).



- (c) What if the load is $\frac{8}{3}\text{ k}\Omega$? What if the load is $80\text{ k}\Omega$?
- (d) Say that we want to support loads in the range of $8\text{ k}\Omega$ to $10\text{ k}\Omega$. We would like to maintain 4 V across these loads. How can we approximately achieve this by setting R_1 and R_2 in the following circuit?



- (e) For part (b), how much power does each element dissipate? Calculate the power using your Thévenin equivalent and using the original circuit. Are the values the same?