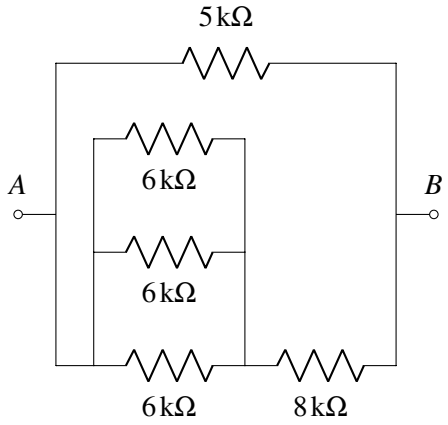
EECS 16A Designing Information Devices and Systems I
Spring 2020 Discussion 7B

1. Series and Parallel Combinations

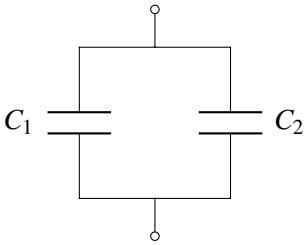
For the resistor network shown below, find an equivalent resistance between the terminals A and B using the resistor combination rules for series and parallel resistors.



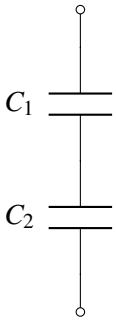
2. Series And Parallel Capacitors

Derive C_{eq} for the following circuits.

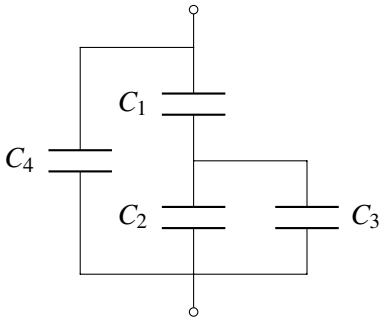
(a)



(b)



(c)



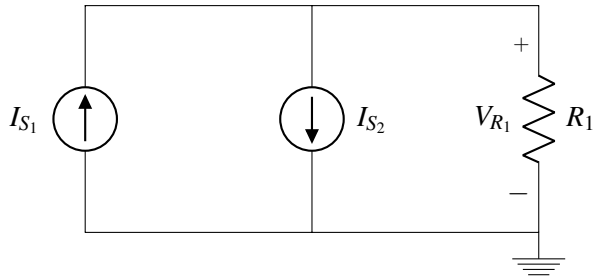
3. Superposition

For the following circuits:

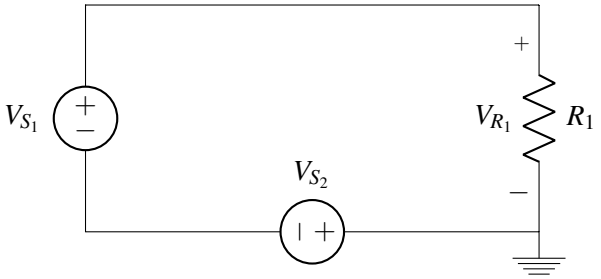
i. Use the superposition theorem to solve for the voltages across the resistors.

ii. For parts (a) and (b) only, find the power dissipated/generated by all components. Is power conserved?

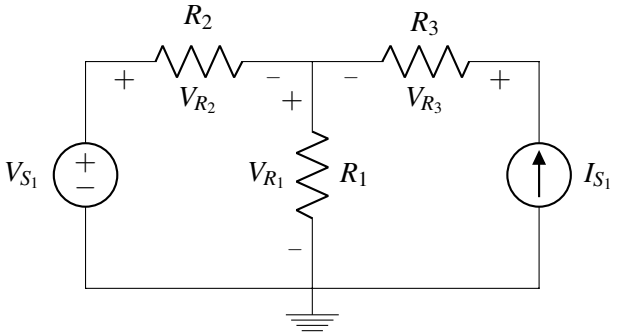
(a)



(b)



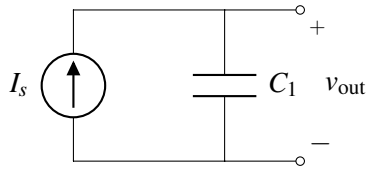
(c)



4. Current Sources And Capacitors

For the circuits given below, give an expression for $v_{\text{out}}(t)$ in terms of I_s, C_1, C_2, and t. Assume that all capacitors are initially uncharged, i.e. the initial voltage across each capacitor is 0 V.

(a)



(b)