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.

![Resistor Network Diagram]

2. Series And Parallel Capacitors

Derive $C_{eq}$ for the following circuits.

(a) $C_1$ $C_2$

(b) $C_1$ $C_2$

(c) $C_4$ $C_1$ $C_2$ $C_3$

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)
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) 

(c)