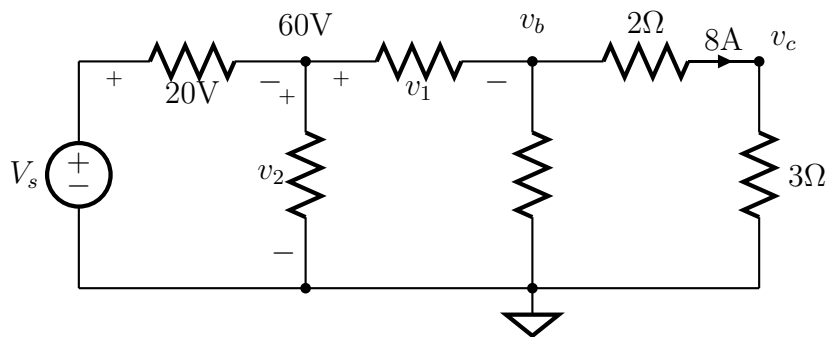


- Homework is due at the beginning of class
 - Start early and get help if you need it
 - Show all work neatly and clearly; redraw and/or rewrite problem if needed as work turned in should stand alone
 - Identify your answers (with units) using a box, circle or underline
 - Staple multiple pages together
1. Consider the circuit shown below with some quantities labeled. Find values for the voltages V_s , v_1 , v_2 , v_b and v_c .



2. What is the gauge of the smallest wire that should be used in a circuit where currents up to 0.5A are expected? Table 3.1 in the book may be helpful.
3. Draw the circuit that corresponds to the following netlist. Label each node in your circuit with the appropriate number.

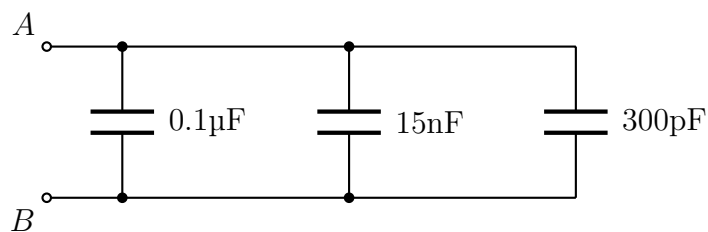
```

Netlist for circuit
VS 1 0 DC 12
R1 1 2 8.1K
C1 2 0 22U
R2 2 3 4.7K
C2 3 0 47U
.END

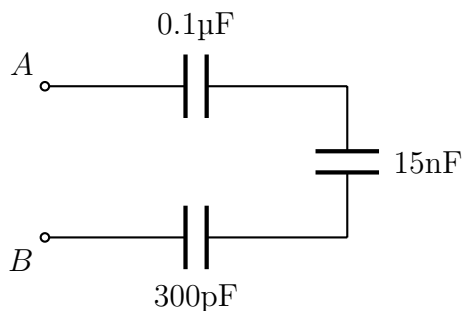
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4. Consider the capacitors connected in different configurations below. Use series and parallel combinations to find one equivalent capacitor, C_{AB} , between nodes A and B .

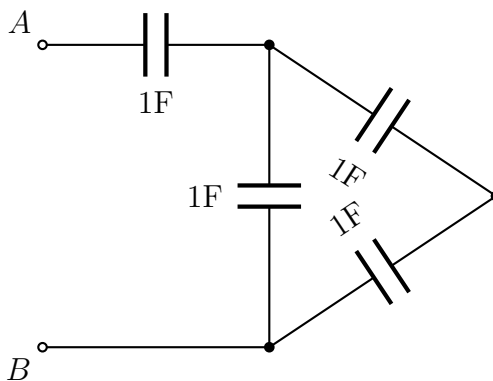
(a)



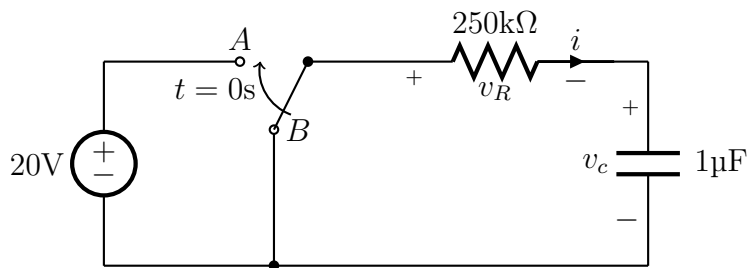
(b)



(c)



5. Consider the RC circuit shown below with a switch that moves from position B to A at time $t = 0\text{s}$, i.e., this is a “charging” circuit.



- (a) Determine the time-constant, τ , of the circuit.
- (b) Write the mathematical expression for the capacitor’s voltage, v_c , when time $t \geq 0\text{s}$.