AP PHYSICS C: CIRCUIT ANALYSIS

Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case and place the letter of your choice in the corresponding box on the student answer sheet.

Note: To simplify calculations, you may use $g = 10\,\mathrm{m/s^2}$ in all problems.

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AP® Physics C: Circuit Analysis
Student Answer Sheet for Multiple-Choice Section

No.	Answer
1	
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PHYSICS C: ELECTRICITY AND MAGNETISM
SECTION II
5 Questions

Directions: Answer all questions. The suggested time is about 15 minutes for answering each of the questions. The parts within a question may not have equal weight. All final numerical answers should include appropriate units. Credit depends on the quality of your solutions and explanations, so you should show your work. Credit also depends on demonstrating that you know which physical principles would be appropriate to apply in a particular situation. Therefore, you should clearly indicate which part of a question your work is for.

1. A 60 μF capacitor is charged to 12 V. The capacitor is then removed from the battery and the plate separation is increased from 2.0 mm to 3.5 mm.

   (a) What is the charge on the capacitor?
   (b) How much energy was originally stored in the capacitor?
   (c) By how much is the energy increased when the plate separation is changed?

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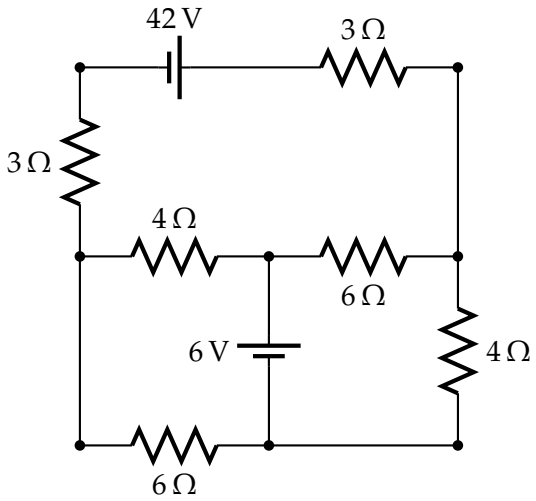
2. Find the current in each part of the circuit shown in the figure below.



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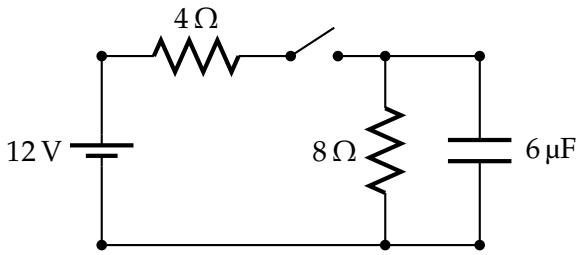
3. The capacitor in the circuit is initially uncharged. Find the current through the battery

   (a) Immediately after the switch is closed
   (b) A long time after the switch is closed



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