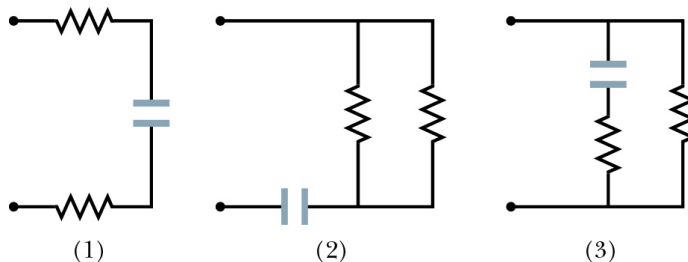


### Quiz #6: Circuits

**Problem 1** (1 point)

The figure below shows three sections of a circuit that are to be connected to a battery. The resistors are identical, as are the capacitors. Rank the sections according to the time required to reach 50% of its final charge, greatest first.

- a) all tie
- b) 1, 2 and 3 tie
- c) 2 and 3 tie, 1
- d) 1, 3, 2
- e) 2, 3, 1
- f) none of the above



**Problem 2** (1 point)

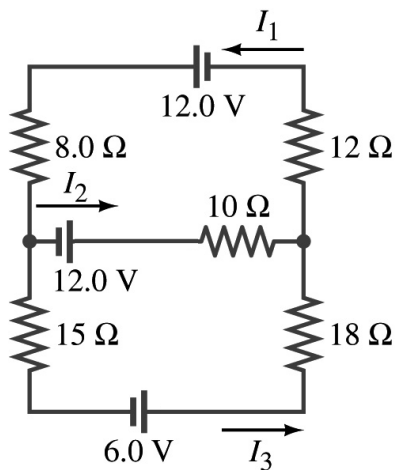
A portion of a circuit is shown, with the values of the currents given for some branches. What is the direction and value of the current  $i$ ?

- a) ↓, 6A
- b) ↑, 6A
- c) ↓, 4A
- d) ↑, 4A
- e) ↓, 2A
- f) none of the above



**Problem 3** (3 points)

Use Kirchoff's rules to write three independent equations for the circuit shown below. (Note: you do not have to solve the equations.)



**Problem 4** (5 points)

Find the current through and the potential difference across each of the four resistors shown in the figure below.

