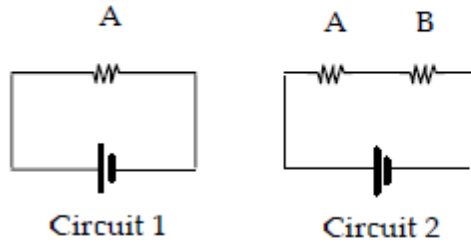


**Quiz #9**  
**Physics 221**

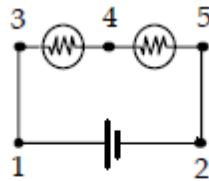
Names: \_\_\_\_\_

1. A capacitor has an electric field of  $4.0 \times 10^5$  V/m between the plates. If the plates have an area of  $2 \times 10^{-4}$  m<sup>2</sup> and are separated by 5 mm, find
  - a. The energy stored between the plates.
  - b. If a proton is placed 1 mm from the positive plate, what is the magnitude of the acceleration of the proton?
  - c. If a proton is placed 1 mm from the negative plate, what is the magnitude of the acceleration of the proton?

2. How does the power delivered to resistor A change when resistor B is added?



- a. Power of A in circuit 1 is greater than Power of A in circuit 2
  - b. Power of A in circuit 1 is less than power of A in circuit 2
  - c. Power of A in circuit 1 is equal to the power of A in circuit 2
3. Rank the potential difference between points 1 and 2, points 1 and 3, points 3 and 4, and points 4 and 5 in the circuit shown below from highest to lowest.



- a.  $\Delta V_{12} > \Delta V_{34} = \Delta V_{45} > \Delta V_{13}$
- b.  $\Delta V_{12} = \Delta V_{34} = \Delta V_{45} > \Delta V_{13}$
- c.  $\Delta V_{12} > \Delta V_{34} > \Delta V_{45} > \Delta V_{13}$
- d.  $\Delta V_{13} > \Delta V_{34} > \Delta V_{45} > \Delta V_{13}$
- e. None of the above: \_\_\_\_\_

$\Delta V = IR$   
 proton mass:  $1.67 \times 10^{-27}$  kg

$I = \Delta Q / \Delta t$

$P = I\Delta V = (\Delta V)^2 / R = I^2 R$