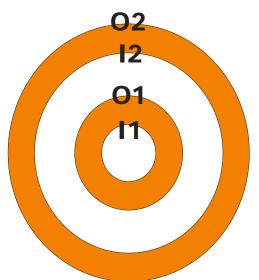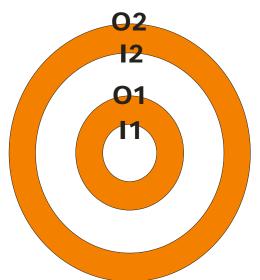# Hollow Conductors

O2
I2
O1
I1

A point charge $+Q$ is placed at the center of the conductors. The induced charges are:

1. $Q(I1) = Q(I2) = -Q$;
    $Q(O1) = Q(O2) = +Q$

2. $Q(I1) = Q(I2) = +Q$;
    $Q(O1) = Q(O2) = -Q$

3. $Q(I1) = -Q$; $Q(O1) = +Q$
    $Q(I2) = Q(O2) = 0$

4. $Q(I1) = -Q$; $Q(O2) = +Q$
    $Q(O1) = Q(I2) = 0$
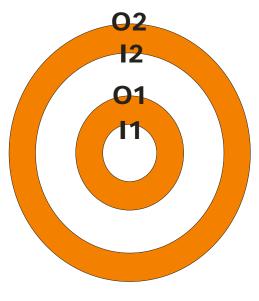
Hollow Conductors

O2

I2

O1

I1

A point charge +Q is placed at the center of the conductors. The potential at O1 is:

1. Higher than at I1

2. Lower than at I1

3. The same as at I1

Hollow Conductors

O2

I2

O1

I1

A point charge +Q is placed at the center of the conductors. The potential at O2 is:

1. Higher than at I1

2. Lower than at I1

3. The same as at I1
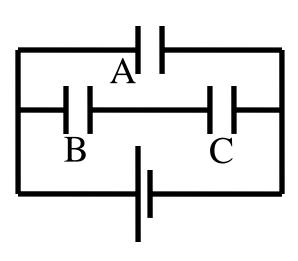
Hollow Conductors

O2
I2
O1
I1

A point charge +Q is placed at the center of the conductors. If a wire is used to connect the two conductors, then positive charge will flow

1. From the inner to the outer conductor

2. From the outer to the inner conductor

3. Not at all

Capacitor Circuit

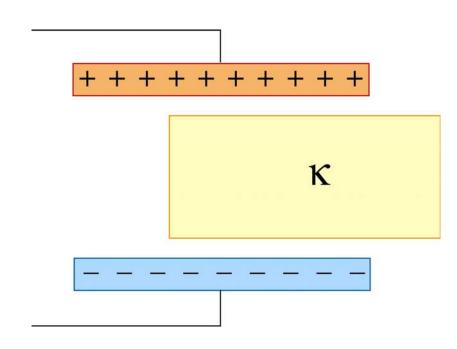Three identical capacitors are connected to a battery as pictured.

The battery is then disconnected. How do the charge on A, B & C compare before and after the battery is removed?

BEFORE; AFTER

1. $Q_A = Q_B = Q_C$; No Change
2. $Q_A = Q_B = Q_C$; $Q_A > Q_B = Q_C$
3. $Q_A = Q_B = Q_C$; $Q_A < Q_B = Q_C$
4. $Q_A > Q_B = Q_C$; No Change
5. $Q_A > Q_B = Q_C$; $Q_A = Q_B = Q_C$
6. $Q_A < Q_B = Q_C$; No Change
7. $Q_A < Q_B = Q_C$; $Q_A = Q_B = Q_C$
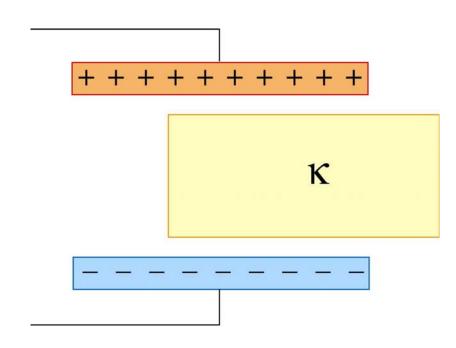
Dielectric in a Capacitor

A parallel plate capacitor is charged to a total charge Q and the battery removed. A slab of material with dielectric constant κ is inserted between the plates. The **charge** stored in the capacitor

1. Increases
2. Decreases
3. Stays the Same
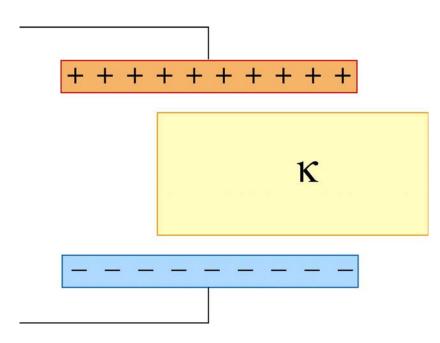
Dielectric in a Capacitor

A parallel plate capacitor is charged to a total charge Q and the battery removed. A slab of material with dielectric constant κ is inserted between the plates. The **energy** stored in the capacitor

1. Increases
2. Decreases
3. Stays the Same

Dielectric in a Capacitor

A parallel plate capacitor is charged to a total charge Q and the battery removed. A slab of material with dielectric constant κ is inserted between the plates. The **force on the dielectric**

1. pulls in the dielectric
2. pushes out the dielectric
3. is zero