

## Question 1

The charge across a capacitor in a discharging RC circuit satisfies

$$\frac{dQ}{dt} = -\frac{1}{RC} Q.$$

Consider two RC circuits with the same capacitors but with different resistors. The two capacitors initially have the same charge.

Which of the following is true?

1. The magnitude of the initial discharge rates are the same.
2. The magnitude of the initial discharge rate is larger for the circuit with the larger resistance.
3. The magnitude of the initial discharge rate is larger for the circuit with the smaller resistance.

## Question 2

The charge across a capacitor in a discharging RC circuit satisfies

$$\frac{dQ}{dt} = -\frac{1}{RC} Q.$$

Which of the following is true as the capacitor discharges?

1. The magnitude of the current stays the same as time passes.
2. The magnitude of the current decreases as time passes.
3. The magnitude of the current increases as time passes.