# Summary of Concepts

- Charge (and therefore voltage) on Capacitors cannot change instantly: remember $V_C = Q/C$
- Short term behavior of Capacitor:
  - If the capacitor starts with no charge, it has no potential difference across it and acts as a wire
  - If the capacitor starts with charge, it has a potential difference across it and acts as a battery.
- Long term behavior of Capacitor: Current through a Capacitor eventually goes to zero.
  - If the capacitor is charging, when fully charged no current flows and capacitor acts as an open circuit.
  - If capacitor is discharging, potential difference goes to zero and no current flows.
- Intermediate behavior: Charge and current exponentially approach their long-term values $\tau = RC$