

## Physics 200

### Chapter 28: DC Circuits (Lecture Examples)

- Ex:1 various single loop circuits (1 battery) (series / parallel / series parallel)
- Ex:2 various single loop circuits ( multiple batteries)
- Ex:3 various multi loop circuits ( multiple batteries)
- Ex:4 How many time constants must elapse for a capacitor to charge from zero to 98% of its maximum charge?
- Ex:5 A capacitor,  $C$ , is charged by being connected to a battery,  $V$ , and a resistor,  $R$ . What is the charge on the capacitor after 4 time constants?
- Ex:6 A capacitor is connected to a resistor,  $R$ , and a battery,  $V$ . A short time,  $t$ , later the current is " $I$ ", what is the capacitance?
- Ex:7 A capacitor,  $C$ , is discharged through a resistor,  $R$ . How much time has elapsed if the power of the resistor is  $1/4$  the maximum power?
- Ex:8 What is the rate at which energy is being dissipated by a resistor,  $R$ , that is connected to a capacitor,  $C$ , a time,  $t$ , after the battery,  $V$ , has been disconnected?
- Ex:9 If a leaky capacitor,  $C$ , losses " $p$ " percent of its charge in time,  $t$ . What is the effective resistance of the dielectric material?