

Series versus Parallel

**Determine $R(\text{eq})$ and current
through each resistor**

Two 10 ohm lightbulbs are connected in series or in parallel to a 12 volt battery

- 1. What is the R_{eq} for each circuit?
- 2. What is the current through each lightbulb?
- 3. Which lightbulbs burn brighter?
- 4. Which circuit would you prefer for headlights of a car? Why?

Three 40 ohm lightbulbs and three 80 ohm lightbulbs are connected to a 12 volt battery

- 1. What is $R(\text{eq})$ and current if they are in series?
- 2. What is the $R(\text{eq})$ and total current if they are in parallel?

Given a lightbulb labeled 2.4 volts,
0.70 amps.

- 1. Find $R(\text{eq})$ and the current if three such lightbulbs are connected in parallel with a C battery with 1.5 volts.

A drill uses 14.4 volt battery and delivers 225 watts of power.

- 1. Find the resistance of the drill.
- 2. If one 14.4 volt battery is connected to four drills that are wired in parallel, what are R_{eq} and the total current out of the battery?