

**Problem 1:** Why is it important to coat electrical wires with PVC (Polyvinyl chloride)?

**Solution:** PVCs are materials that do not conduct electricity; hence, this is the best material to use in order to prevent electric shock that may happen.

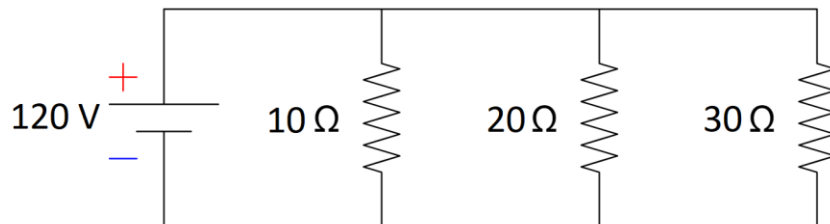
**Problem 2:** How will you compare electric force with gravitational force?

**Solution:** Electric force can either be attractive or repulsive depending on the sign while the gravitational force is always attractive. Furthermore, the electric force is so much greater than gravitational force in terms of strength.

**Problem 3:** Find the current that is drawn by a light that has a resistance of  $50 \Omega$  when connected to a 150-V circuit.

**Solution:** We know that  $I = V/R$ . To get the current, we will just perform the calculation.  $I = 150 \text{ V}/50 \Omega = 3 \text{ A}$ .

**Problem 4:** Find the total resistance of the circuit below.



**Solution:** In a parallel circuit, the total resistance is equal to  $1/(1/R_1 + 1/R_2 + \dots + 1/R_N)$ .

$$R_T = 1/(1/10 \Omega + 1/20 \Omega + 1/30 \Omega) = 5.45 \Omega$$

**Problem 5:** How is an electric field different from a magnetic field? Explain your answer.

**Solution:** An electric field is produced by stationary charges whereas a magnetic field is produced by moving charges.