Itunes University – Electricity – Answer Key

1) What do simple circuits include?

Simple circuits include a power source (battery), wires and a load/resistor.

2) What is everything about electricity related to?

Electricity is related to the flow of electrons.

3) What is a series circuit?

A series circuit is a circuit that only has one path for electrons to follow.

4) What is a parallel circuit?

A parallel circuit is a circuit where electrons have more than one path to follow.

5) What would happen if one light in a parallel circuit went out?

If one light in a parallel circuit went out, the rest of the lights in the circuit would stay on.

6) Define voltage. **Voltage is the push of electrons in a circuit and the potential for each coulomb to do work on its path from the negative terminal to the positive terminal.**

7) Define current. **Current is the flow of electrons past a point in a certain amount of time.**

8) Define resistance. **Resistance is the material used to slow down the flow of electrons.**

9) What is the formula for calculating current? **I = V/R**

10) What is another way of writing the formula for current?

Current = Volts/Ohms

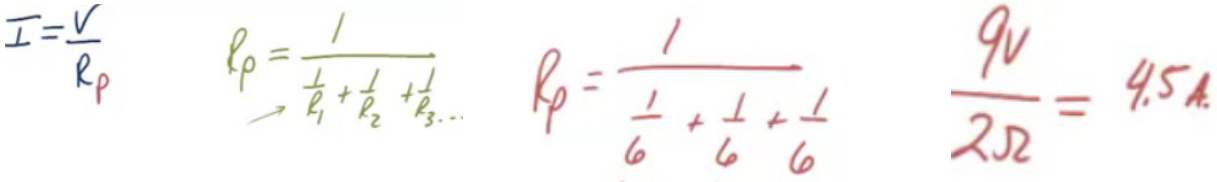
11) Simple circuit: headlights of a typical car are powered by a 12 volt battery. What is the resistance of the headlights if the current is 3 amps?

I = V/R 3 = 12/R R = 4 ohms

12) A series circuit contains a power source which is powered by a 9 volt battery and contains 3 flashlight bulbs with a resistance of 6 ohms each. What is the current?

I = V/R I = 9/6+6+6 I = 9/18 I = 0.5A

13) The same light bulbs are now placed in parallel. What is the new current?



14) Why are the answers to questions 12 and 13 different? **In a parallel circuit there are more pathways for the electrons to travel. Increasing the number of pathways, decreases the resistance and in turn, increases the current.**