Raspberry Pi Activity Assignment: LED the Way

Name: _____

Calculations

Suppose that a circuit has a power source voltage of 9V, and an LED with a forward voltage (i.e., voltage drop) of 2.5V that requires 25mA of current for optimum brightness. In the space below, calculate the resistance of the series resistor required. State the formula used as the basis for your answer, identify all units, and show all work!

In the space below, calculate the power dissipated by the resistor. State the formula used as the basis for your answer, identify all units, and show all work!

In the space below, calculate the power dissipated by the LED. State the formula used as the basis for your answer, identify all units, and show all work!

Truth tables
Fill in the truth table for the *and* gate below:

A	B	Z

Fill in the truth table for the *xor* (exclusive *or*) gate below:

A	B	Z

Circuits
Using the figure below, draw the single-switch, single-LED circuit in which the RPi was responsible for detecting the state of the switch (as input) and accordingly affecting the blink rate of the LED (as output):