**PHYSICS 1.3 Name:**

**WORKSHEET TWO**

**CIRCUITS**

1. (a) Draw circuit diagrams of a circuit containing a battery, two light bulbs, a switch and a voltmeter. Draw one with the light bulbs in **series** and the other with them in **parallel**. In both circuits the switch should be able to turn off both the light bulbs at the same time. The voltmeter should be connected to measure the voltage of one bulb in each circuit.

(i) Series circuit

(ii) Parallel circuit

(b) Compare the brightness of the bulbs in the two circuits you have drawn if a 9 volt battery was connected to each circuit. Explain your answer in terms of the voltage across each bulb (assume all bulbs are identical).

(c) If you were to choose one of the circuits above to use for car headlights, discuss which circuit you would choose. Explain at least two reasons for your answer.

2. (a) Write a definition for **current**.

(b) Write a definition for **voltage**.

3. Study the two circuits below and complete the table to show current and voltage readings.

Assume all bulbs are identical and the voltage from the battery is **10V** for both circuits.

**CIRCUIT B**

A1

A2

V2

V1

A3

**CIRCUIT A**

A2

V2

V1

A1

|  |  |  |  |
| --- | --- | --- | --- |
| **CIRCUIT A** | | **CIRCUIT B** | |
| **Meter** | **Reading** | **Meter** | **Reading** |
| **A1** |  | **A1** |  |
| **A2** | *0.2A* | **A2** |  |
| **V1** |  | **A3** | *1.0A* |
| **V2** |  | **V1** |  |
|  |  | **V2** |  |