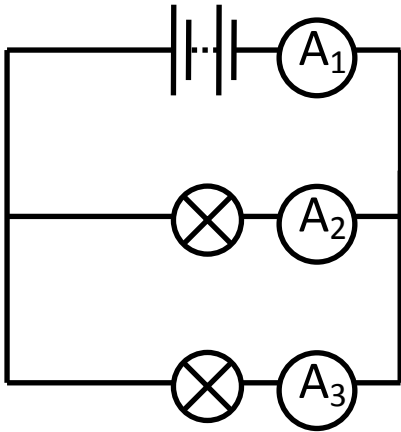# Current and voltage in parallel circuits

The sum of the currents through each component (branch) in a parallel circuit, adds up to the current which flows from the supply.
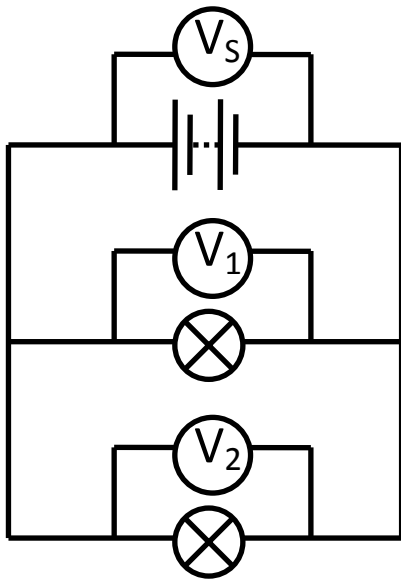
The currents through each component (branch) add up to the current from the battery.

$$A_1 = A_2 + A_3$$

$$A_s = A_2 + A_3$$

The voltage across every component (branch) in a parallel circuit is the same as the supply voltage.
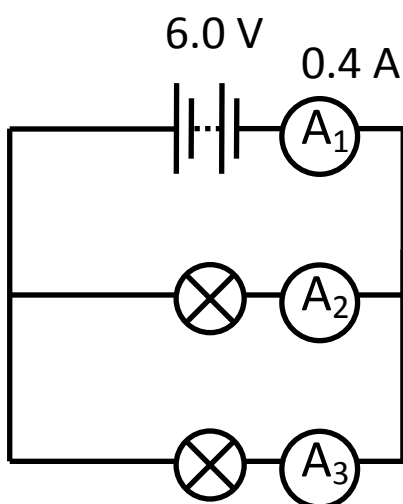
Each voltmeter has the same reading.

$$V_S = V_1 = V_2$$

The supply voltage is the same as the voltage across each of the components in parallel.

Examples

1. In the circuit shown below, the current from the battery flows through two identical bulbs. What are the current readings on A_2 and A_3?

In a parallel circuit, the current from the battery is divided equally between the branches as the bulbs are identical.

So the current through each bulb = 0.4/2 = 0.2 A

2. The voltage across the battery is 6.0 V.   What is the voltage across the two bulbs?

6.0 V

V_S

V_1

V_2
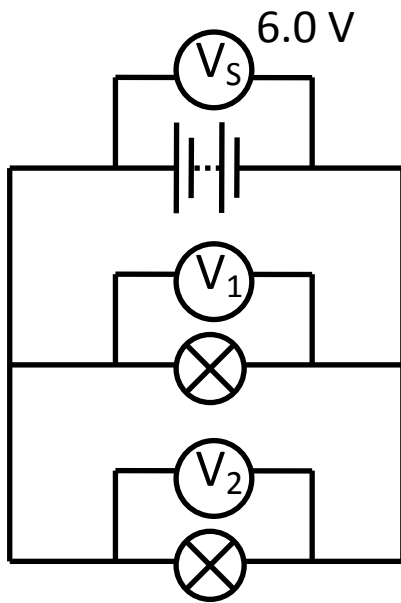
In a parallel circuit, the voltage across each of the components in parallel is the same as the supply voltage.

So the voltage across $V_S = V_1 = V_2$

Therefore the voltage across each bulb is 6.0 V