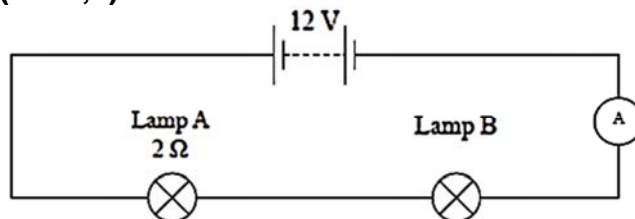


SCIENCE: PHYSICS 90191 ELECTRICITY: RESISTANCE

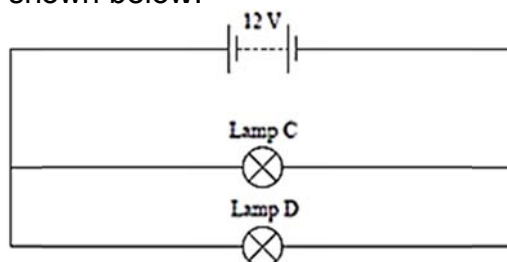
ELECTRICAL CIRCUITS (2008;1)



The circuit above contains two lamps which are not the same.
The current was measured and found to be 2 A.

- (a) Using $V = IR$, calculate the voltage across lamp A.

The circuit is then changed, as shown below.

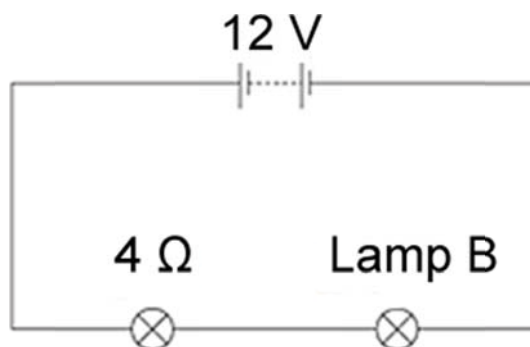


Lamps C and D are identical.

- (b) The power output of lamp C is 36 W in this circuit. Calculate the resistance of lamp C.

ELECTRICITY (2007;3)

Study the circuit diagram below. The two lamps are NOT identical.



When an ammeter is placed in this circuit a reading of 1.2 A is recorded.

- (a) Using the equation $V = IR$, calculate the voltage across the $4\ \Omega$ lamp.
(b) Calculate the resistance of lamp B.

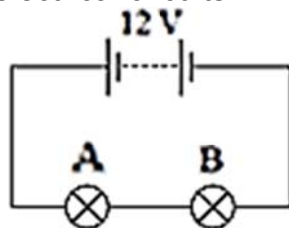
TEO'S MOTORBIKE LIGHTS (2006;3)

Teo has bought a second-hand motorbike.

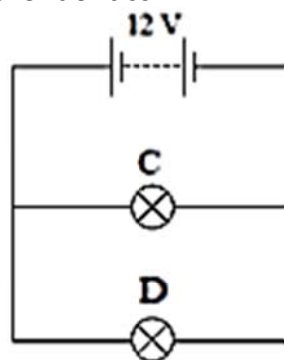
Teo finds a spare bulb marked 12 V, 30 W, in his garage. Calculate the resistance of this bulb, and give an appropriate unit.

DC ELECTRICITY (2005;3)

Refer to the following electrical circuits. All light bulbs are identical.



Circuit A



Circuit B

The resistance of each bulb is $15\ \Omega$.

(a) Use $V = IR$ to calculate the current in bulb A.

The current is measured in bulb C's branch of the circuit and found to be $0.8\ \text{A}$.

(b) Determine the total current provided by the battery in circuit B.

(c) Calculate the total resistance of Circuit B.

ELECTRICITY (2004;1)

Marty is the coach of the local women's cricket team. Marty decides to rewire the lights on the team's trailer which is connected to a $12\ \text{V}$ battery.

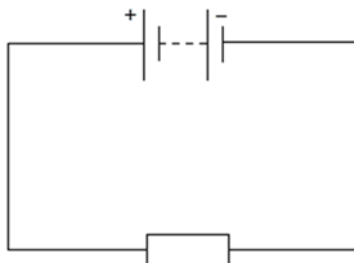
Marty can only find two different bulbs, a $6\ \text{W}$ bulb and a $12\ \text{W}$ bulb. He connects these two bulbs in parallel into the trailer circuit.

(a) Calculate the current passing through the $6\ \text{W}$ bulb. Include an appropriate unit.

(b) Calculate the resistance of the $12\ \text{W}$ bulb.

HEATING (2003;2)

A $120\ \text{W}$ heating coil is connected to a power supply, as shown in the circuit diagram below.



The heating coil is a resistor. A voltmeter placed across the heating coil reads $12\ \text{V}$ calculate the resistance of the heating coil. The units are required.