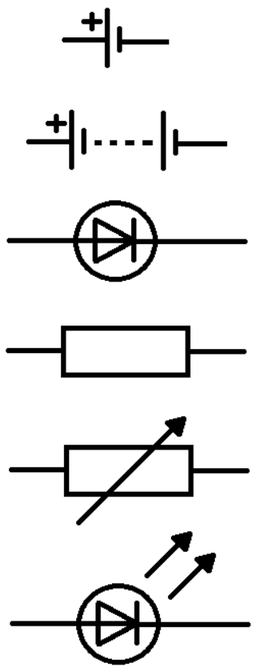
Paper 1

Chapter 2 — Electricity

Label Circuit Symbols



Draw Circuit Symbols

Lamp

Fuse

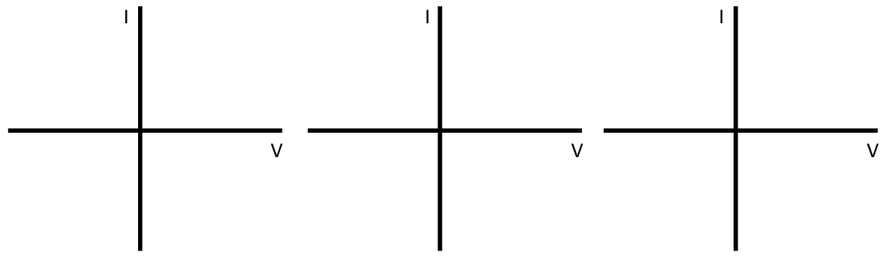
Voltmeter

Ammeter

Thermistor

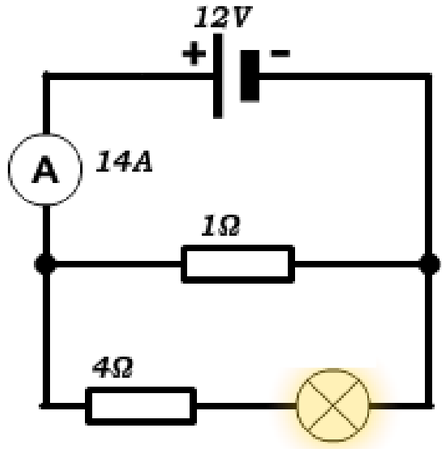
LDR

Draw the IV Characteristic



An ohmic conductor | A diode | A filament lamp

V = I x R



1.) What is the potential difference across the 1Ω resistor?

2.) What is the current through the 1Ω resistor?

3.) What is the current through the bulb?

4.) What is the total resistance for the bottom path?

5.) What is the resistance of the bulb?

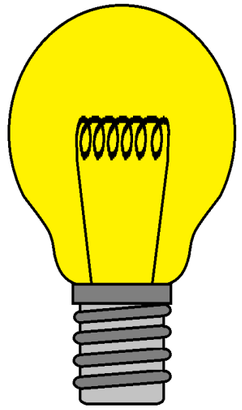
Calculation Practice

1.) If a 100W bulb has a current of 2A what is its resistance?

Resistance = ____ (__)

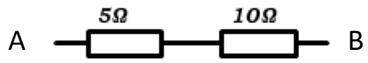
2.) How much energy will a 100W bulb transfer if left on for 5 minutes?

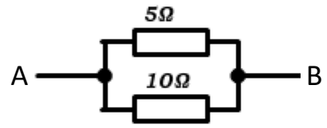
Energy transferred = ____ (__)



Resistance

What is the resistance between A and B in each picture?





Complete the Equations (include units)

charge flow (C) =

potential difference (V) =

power (W) = potential difference (V) x

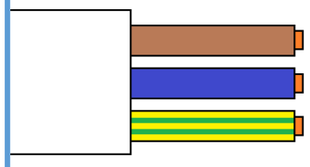
power (W) = current (A) ^{2} ×

energy transferred (J) = power (W) ×

energy transferred (J) = charge flow (C) ×

3 Core Cable

Label the wires and give the potential difference between each wire and earth.



Thermistor and LDR

The resistance of a thermistor _____ as the temperature increases.

A thermistor could be used to…

The resistance of an LDR _____ as light intensity increases.

A LDR could be used to...

National Grid

The National Grid is made up of c_____ and t_____ linking p____ s_____ to consumers.

Step ____ transformers are used to _____ the potential difference for the transmission cables then step ____ transformers are used to _____ the potential difference for consumers.

Mains Electricity

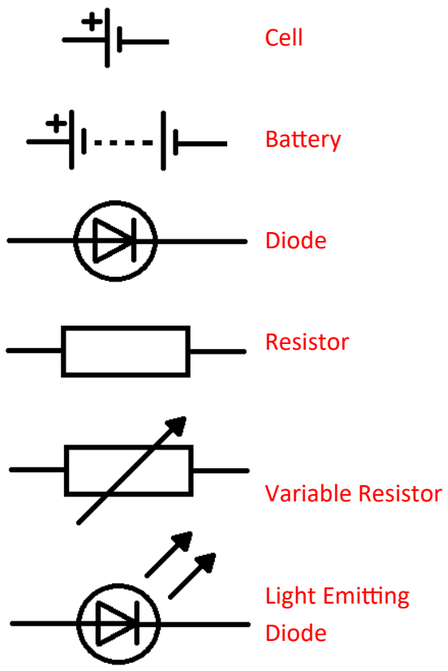
Mains electricity supplies an a_____ c_____ .

In the UK the mains supply has a frequency of _____ and is about _____ V.

Paper 1

Chapter 2 — Electricity

Label Circuit Symbols



Draw Circuit Symbols

Lamp

Fuse

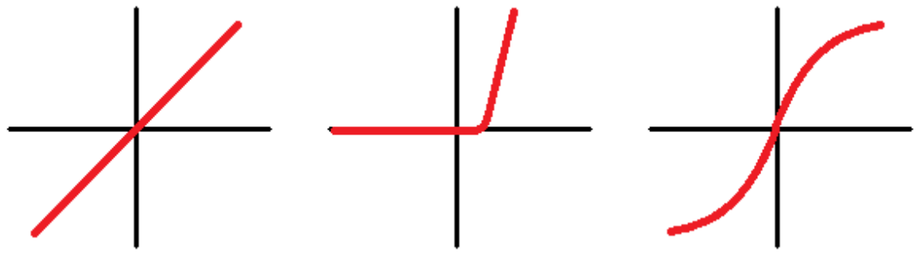
Voltmeter

Ammeter

Thermistor

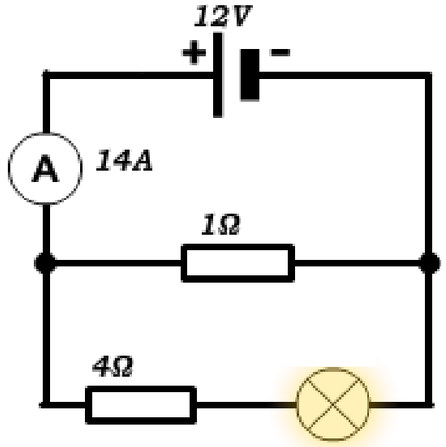
LDR

Draw the IV Characteristic



An ohmic conductor | A diode | A filament lamp

V = I x R



1.) What is the potential difference across the 1Ω resistor? 12V

2.) What is the current through the 1Ω resistor? 12A

3.) What is the current through the bulb? 2A

4.) What is the total resistance for the bottom path? 6Ω

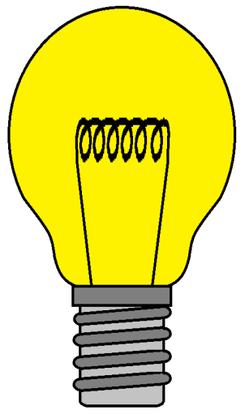
5.) What is the resistance of the bulb? 2Ω

Calculation Practice

1.) If a 100W bulb has a current of 2A what is its resistance? power = current^2 x resistance

100 = 2^2 x resistance 100/4 = resistance = 25

Resistance = 25Ω



2.) How much energy will a 100W bulb transfer if left on for 5 minutes?

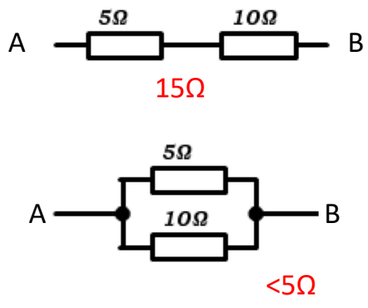
Energy transferred = power x time

= 100W x 300s = 30,000

Energy transferred = 30,000J

Resistance

What is the resistance between A and B in each picture?



Complete the Equations (include units)

charge flow (C) = current (A) x time (s)

potential difference (V) = current (A) x resistance (Ω)

power (W) = potential difference (V) x current (A)

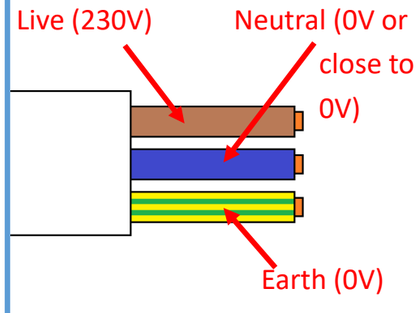
power (W) = current (A)^2 × resistance (Ω)

energy transferred (J) = power (W) × time (s)

energy transferred (J) = charge flow (C) × potential difference (V)

3 Core Cable

Label the wires and give the potential difference between each wire and earth.



Thermistor and LDR

The resistance of a thermistor decreases as the temperature increases.

A thermistor could be used to… make a thermostat keep a building at a certain temperature.

The resistance of an LDR decreases as light intensity increases.

A LDR could be used to...switch on lights when it gets dark.

National Grid

The National Grid is made up of cables and transformers linking power stations to consumers.

Step up transformers are used to increase the potential difference for the transmission cables then step down transformers are used to decrease the potential difference for consumers.

Mains Electricity

Mains electricity supplies an alternating current .

In the UK the mains supply has a frequency of 50Hz and is about 230 V.