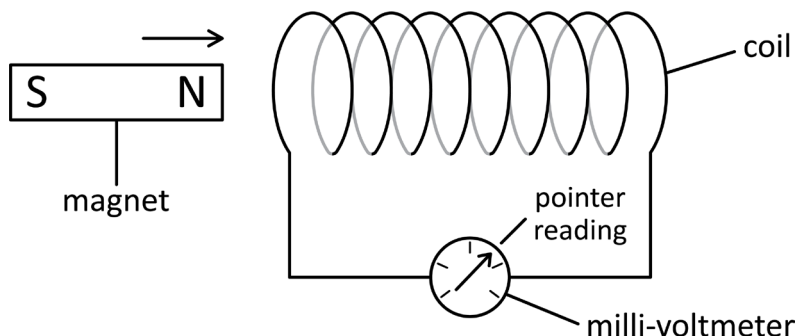


Name: Class:



A student uses the equipment shown in the figure below.



The student then moves the magnet to the left so that it is completely out of the coil and moves it far away from the coil.

i. Describe how the pointer moves when the student moves the magnet out of the coil.

 A description to include **both** of the following:

- The pointer deflects to the left.
- (then pointer) returns to zero reading.

ii. Explain why the pointer behaves as described in (i).

 Any **three** from:

- (magnet has a) magnetic field.
- Conductor/coil cuts magnetic field.
- (this) induces or produces emf/voltage/p.d. in the conductor/coil (so reading on meter).
- No cutting of field when far from coil (so no reading on meter).

The current in a car headlamp is 30 mA when connected to a 12V battery.

What is the resistance of the lamp?

$$R = v \div I \quad R = 12 \div 0.03$$

$$\text{Resistance} = 400 \, \Omega$$

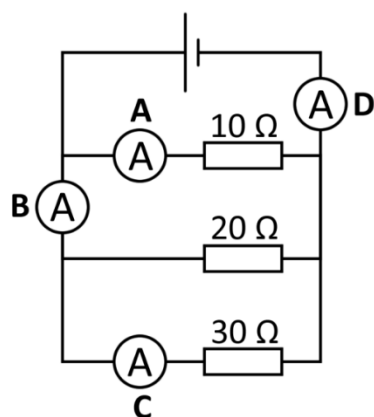
In an electric circuit, 40 C of electric charge pass a point in 5.0 s.

What is the current in the circuit?

$$Q = I \times t \quad 40 = I \times 5$$

$$\text{Current} = 8 \, \text{A}$$

A circuit contains four ammeters and three resistors with different values.



i. Which ammeter shows the largest reading?

Ammeter D

ii. Calculate the total resistance of the three resistors.

$$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_t} = \frac{1}{10} + \frac{1}{20} + \frac{1}{30} \quad \frac{1}{R_t} = \frac{11}{60} \quad R_t = 1 \div \frac{11}{60}$$

$$\text{Resistance} = 5.45 \, \Omega$$