

29 Which property of a light wave can be determined using a diffraction grating?

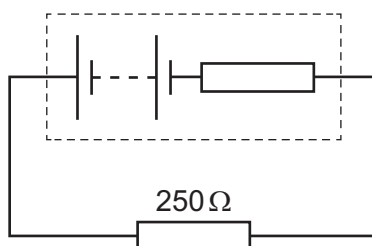
- A amplitude
- B intensity
- C speed
- D wavelength

30 There is an electric current in a copper wire.

Which statement describing the average drift speed of the charge carriers in the wire is correct?

- A It is nearly $3 \times 10^8 \text{ m s}^{-1}$.
- B It is proportional to the cross-sectional area of the wire.
- C It is proportional to the length of the wire.
- D It is proportional to the magnitude of the current.

31 A battery with a constant internal resistance is connected to a resistor of resistance 250Ω , as shown.



The current in the resistor is 40 mA for a time of 60 s . During this time 6.0 J of energy is dissipated by the internal resistance.

What is the energy supplied to the external resistor during the 60 s and the electromotive force (e.m.f.) of the battery?

	energy / J	e.m.f. / V
A	30	2.5
B	30	7.5
C	24	10.0
D	24	12.5