3 X-ray diffraction may be observed using a crystal as the diffraction grating. Electron diffraction may also be observed using a similar crystal if the de Broglie wavelength of the electron is appropriate.
The X-rays have wavelength 2.4×10^{-10} m. For an electron to have a de Broglie wavelength of 2.4×10^{-10} m, determine

For Examiner's Use

(a) the momentum of the electron,

momentum = ... Ns [2]

(b) the potential difference through which the electron must be accelerated from rest.

potential difference = ... V [4]