5 As part of the decay of arsenic-74, a γ-ray photon of energy 4.53×10^{-14} J is emitted.

For Examiner's Use

(a) Calculate, for this photon,

(i) the wavelength,

wavelength = ... m [2]

(ii) the momentum.

momentum = ... N s [2]

(b) The arsenic-74 nucleus is stationary before it decays.
Suggest why the nucleus will be moving after the decay.

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..... [2]