- The isotope $^{37}Ar$ has a half-life of 35 days. If each decay event releases an energy of 1.0 MeV, calculate how many days it would take for a 0.10 g sample of $^{37}Ar$ to release $22.57 \times 10^3$ kJ (enough energy to boil 10.0 L of water)?

**Marks 3**

Answer:

- The isotope $^{222}Rn$ decays to $^{214}Bi$ in three steps. Identify all possible decay paths for this process, including all the intermediate isotopes along each path and the identity of the decay process involved in each individual step.

**3**