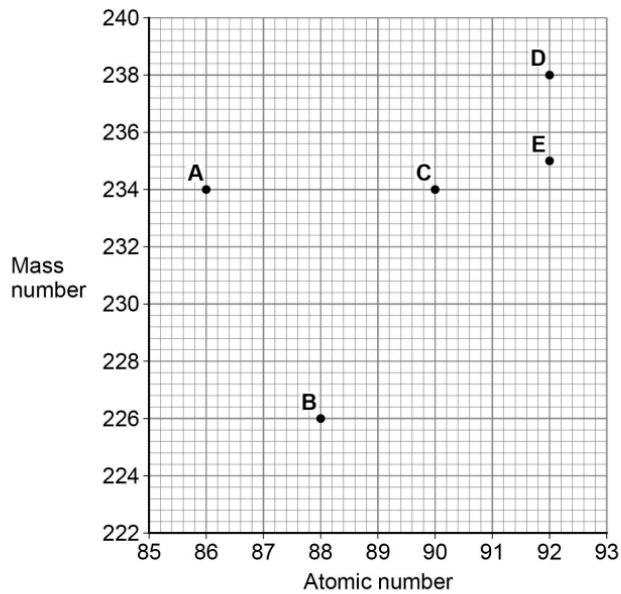


Q1.(2021)

a)

Figure 6 shows the mass number and the atomic number for the nuclei of five different atoms.

Figure 6

How many neutrons are there in a nucleus of atom **A**?

[1 mark]

b)

Which **two** atoms in **Figure 6** are the same element?

[1 mark]

Tick (✓) **one** box.

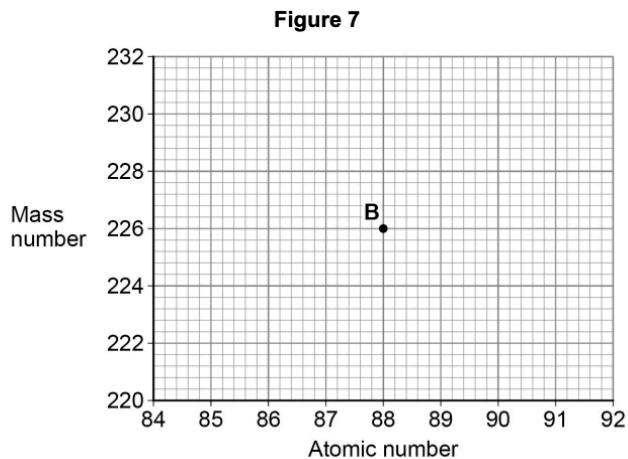
A and B☐**A and C**☐**C and D**☐**D and E**☐

c)

Nucleus **B** decays by emitting an alpha particle.

Draw an arrow on **Figure 7** to represent the alpha decay.

[2 marks]



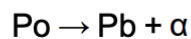
d)

What is meant by the 'random nature of radioactive decay'?

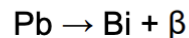
[1 mark]

e)

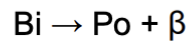
A polonium (Po) nucleus decays by emitting an alpha particle and forming a lead (Pb) nucleus.



The lead (Pb) nucleus then decays by emitting a beta particle and forms a bismuth (Bi) nucleus.



The bismuth (Bi) nucleus then decays by emitting a beta particle and forms a polonium (Po) nucleus.



Explain how these three decays result in a nucleus of the original element, polonium.

[3 marks]