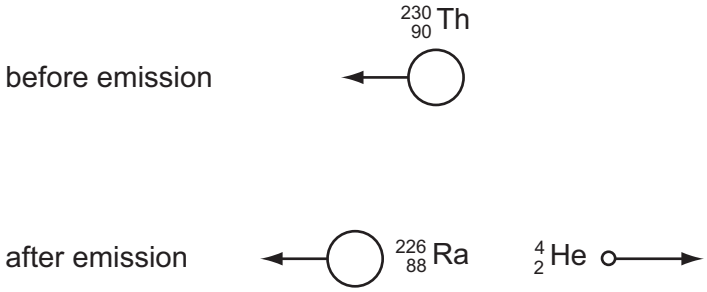
9 A person, travelling on a motorway a total distance of 200 km, travels the first 90 km at an average speed of 80 km h^{-1}.

Which average speed must be obtained for the rest of the journey if the person is to reach the destination in a total time of 2 hours 0 minutes?

A 110 km h^{-1} **B** 120 km h^{-1} **C** 122 km h^{-1} **D** 126 km h^{-1}

10 A moving thorium nucleus $^{230}_{90}Th$ spontaneously emits an α-particle. The nucleus formed is a radium nucleus $^{226}_{88}Ra$, as shown.



Which statement is correct?

A The kinetic energy of the α-particle equals the kinetic energy of the radium nucleus.

B The momentum of the α-particle equals the momentum of the radium nucleus.

C The total momentum before the emission equals the total momentum after the emission.

D The velocity of the α-particle equals the velocity of the radium nucleus.

Space for working