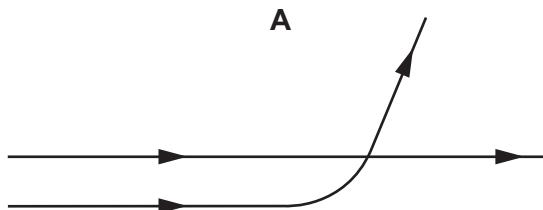
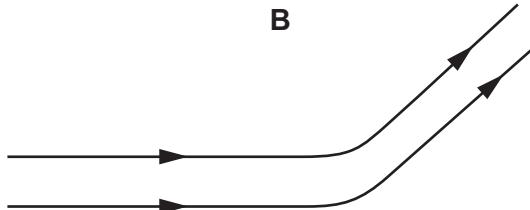


- 38 Two  $\alpha$ -particles with equal energies are fired towards the nucleus of a gold atom.

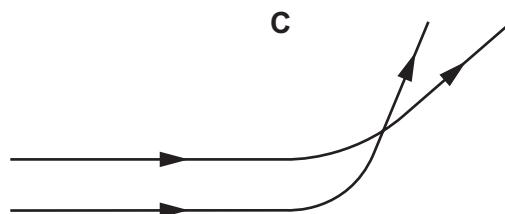
Which diagram best represents their paths?



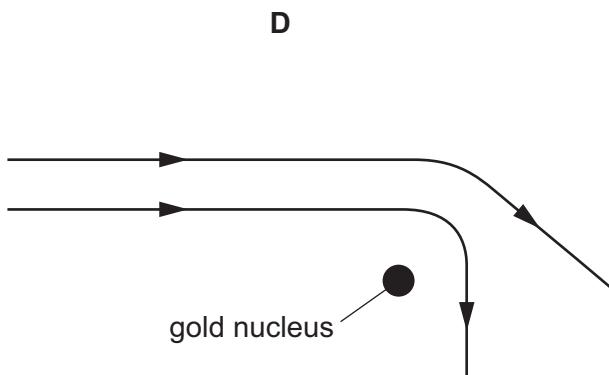
gold nucleus



gold nucleus



gold nucleus



gold nucleus

- 39 When a nucleus emits an  $\alpha$ -particle, how do the proton number and the nucleon number of the