

7 The  $\alpha$ -particle scattering experiment provided evidence for the existence of a nuclear atom.

(a) State what could be deduced from the fact that

- (i) most  $\alpha$ -particles were deviated through angles of less than  $10^\circ$ ,

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.....

[2]

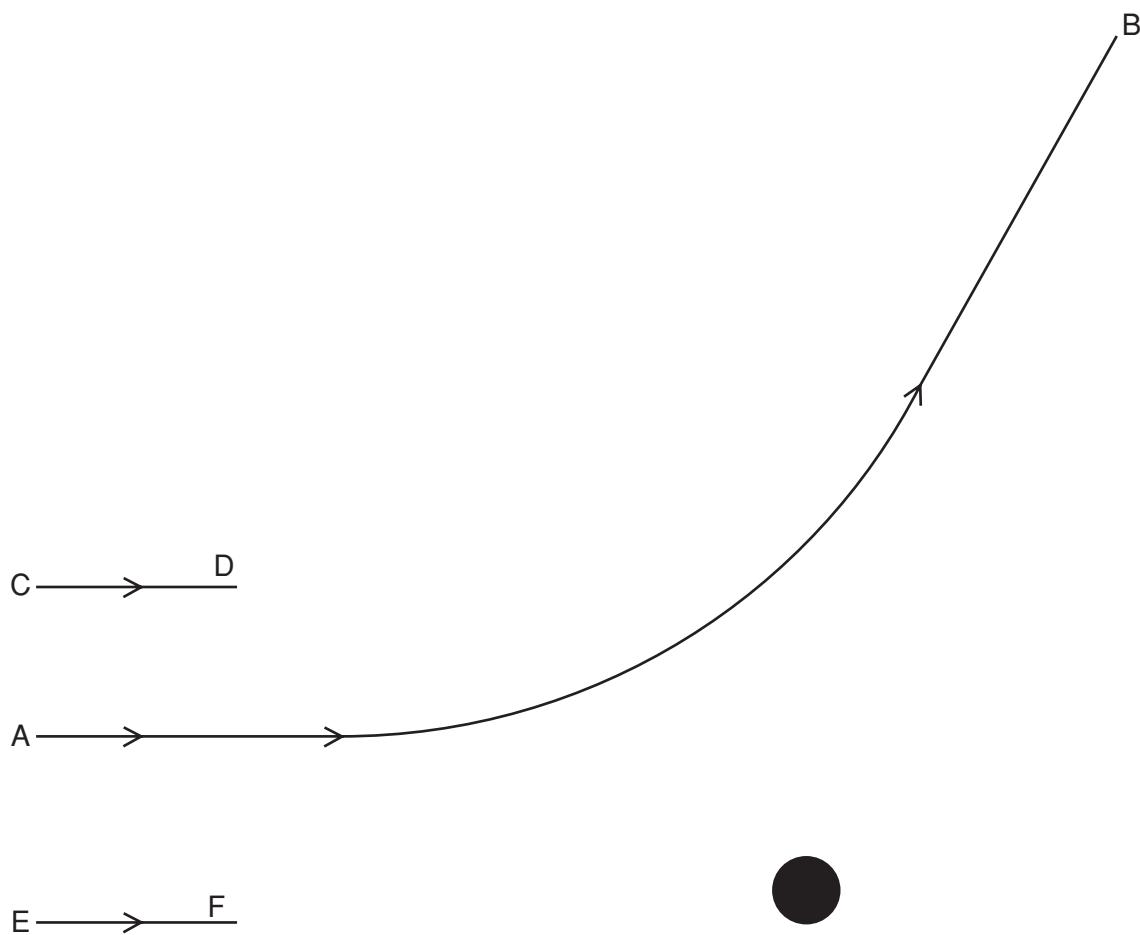
- (ii) a very small proportion of the  $\alpha$ -particles was deviated through angles greater than  $90^\circ$ .

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[2]

- (b) Fig. 7.1 shows the path AB of an  $\alpha$ -particle as it approaches and passes by a stationary gold nucleus.

For  
Examiner's  
Use



**Fig. 7.1**

On Fig. 7.1, draw lines (one in each case) to complete the paths of the  $\alpha$ -particles passing by the gold nucleus when the initial direction of approach is

- (i) along line CD,
- (ii) along line EF.

[3]

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