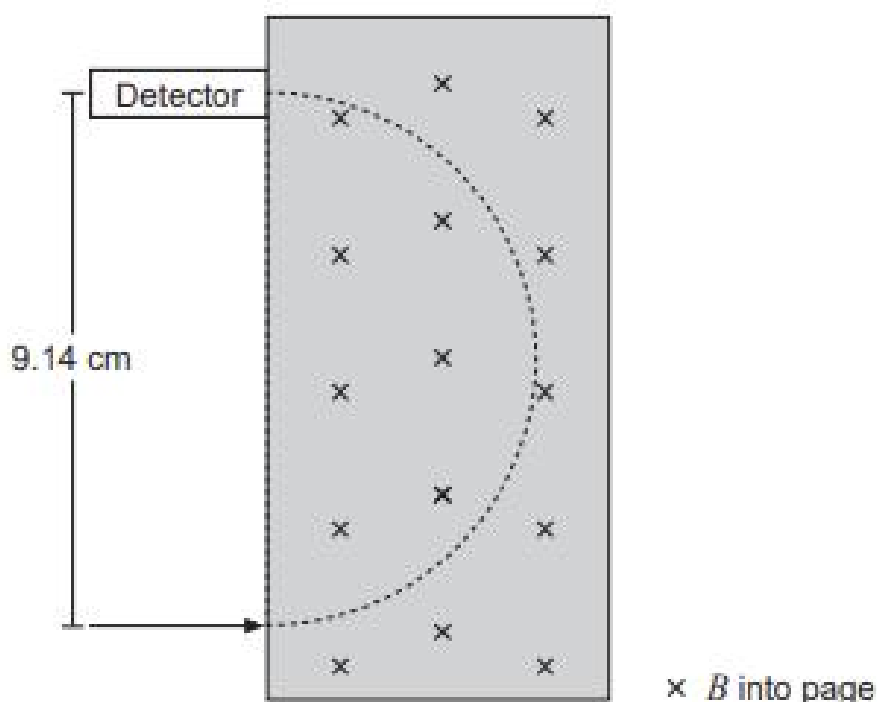


**Question 4****(5 marks)**

A charged particle enters a  $0.350 \text{ mT}$  magnetic field at right angles to the field with a velocity of  $2.81 \times 10^6 \text{ m s}^{-1}$ . The magnitude of the charge of the particle is  $1.60 \times 10^{-19} \text{ C}$ . It lands on the detector  $9.14 \text{ cm}$  from where it entered after completing  $180^\circ$  of its circular path.



(a) Calculate the mass of the particle.

(4 marks)

Answer: \_\_\_\_\_ kg

(b) Which of the following could the particle be? Circle your answer.

(1 mark)

- A proton
- B electron
- C anti-proton
- D positron
- E none of the above