

NAME \_\_\_\_\_  
PERIOD \_\_\_\_\_

QUIZ#30D  
MAGNETIC FORCES

A charge particle of unknown mass but with a known charge of  $11.2 \times 10^{-19} \text{ C}$  is accelerated by an electric field present in a area  $L = 12.0 \text{ cm}$  squared by a potential difference of 3800 Volts and then enters a magnetic field which is directed into the page as shown to the right and which has an intensity of  $B = 3.25 \text{ Tesla}$ . After entering the field the charged particle follows a circular path which has a radius of  $r = 14.0 \text{ cm}$  as shown.

1. What will be the velocity of this charged particle after being accelerated by the potential difference? [3 pts]
2. What is the direction and magnitude of the accelerating electric field? [3 pts]
3. Is this particle charged positive or negative? Justify your answer! [3 pts]
4. What is the mass of this particle? [3 pts]
5. In what direction should an electric field be directed in order for this charged particle to pass straight through the magnetic field without being deflected? [3 pts]

