

Name: \_\_\_\_\_

1. An electron ( $m = 9.11 \times 10^{-31}$  kg,  $q = -1.602 \times 10^{-19}$  C) is accelerated to a maximum speed of  $7 \times 10^6$  m/s by placing it into a field with a potential difference  $\Delta V$ . What is the required magnitude of the potential difference  $\Delta V$ ?

$\Delta V =$

2. The electron then enters a region of constant magnetic field  $B = 9.11 \times 10^{-4}$  T, causing it to move in a circle. Determine the radius  $r$  of this circle.

$r =$

3. On page 69 of the lab manual, shortly after equation (7), you were asked to derive an equation for  $r^2$  that did not have a  $B$  in it anywhere. The equation you derived is started for you here, but it is missing exponents for several terms. ADD ONLY EXPONENTS to the symbols to make this equation correct. You may not otherwise add, change, or re-arrange anything.

$$r^2 = \frac{5 R V}{2 \mu N i} \left( \frac{q}{m} \right)$$

