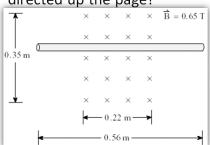
Note Title A 4.0x10⁻²⁵ kg charged A long conductor is placed in particle enters a 1.5 T a 0.65 T magnetic field as magnetic field directed into shown below. What are the the page. It travels in a magnitude and direction of counter-clockwise circle of the current that produces a radius $1.2x10^{-4}$ m at $2.5x10^{7}$ 1.6 N force on the wire m/s. What is the magnitude directed up the page? and **polarity** of the charge? $\overrightarrow{B} = 0.65 \text{ T}$ Χ Χ 0.35 m Χ Χ X В Χ Χ

A long conductor is placed in a 0.65 T magnetic field as shown below. What are the **magnitude** and **direction** of the current that produces a 1.6 N force on the wire directed up the page?



$$F_{m} = BII$$

$$I = F_{m} = 1.6N$$

$$(0.657)(0.22m)$$

$$= 11.2 A right$$

A 4.0×10^{-25} kg charged particle enters a 1.5 T magnetic field directed into the page. It travels in a counter-clockwise circle of radius 1.2×10^{-4} m at 2.5×10^{7} m/s. What is the **magnitude** and **polarity** of the charge?

$$F_{c} = F_{m} V$$

$$\frac{mV^{2}}{r} = qVB$$

$$\frac{mV}{r} = qB$$

$$q = \frac{mv}{rB} = \frac{(4.0 \times 10^{25} \text{kg})(2.5 \times 10^{7} \text{m/s})}{(1.2 \times 10^{-4} \text{m})(1.5 \text{ T})}$$
$$= 5.6 \times 10^{-14} \text{C}$$

Using RHR charge is positive