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right answer +5

P2220 MT4
SP2020 P1

Sign error -1

BRIAN

Significant figure error -1

$$a) r = \frac{mv}{qB} = \frac{m_e(7.5 \times 10^4)}{e(0.35)} = 1.22 \times 10^{-6} \text{ m} \text{ or } 1.18 \times 10^{-6} \text{ m}$$

using values in many calculators using truncated values of constants

$$b) F = ILB = (1250)(200)(.45 \times 10^{-4}) = 15.8 \text{ or } 15.75 \text{ N}$$

c) clock wise in the direction opposing change

$$d) \mathcal{E} = -\frac{d\Phi_B}{dt} = -\frac{d}{dt} \int \vec{B} \cdot d\vec{A} = -\frac{d}{dt} (NB_0 \pi r^2 \sin \omega t)$$

volts

$$= -NB_0 \pi r^2 \omega \cos \omega t = -1.66 \cos \omega t \text{ (Volts) or } -1.66 \cos \left(266 \frac{\text{rad}}{\text{s}} t \right) \text{ Volts}$$

$$e) \Phi_B = \int \vec{B} \cdot d\vec{A} = (.8 \times 10^{-4}) / (7)(2.7) \cos 20 = 1.42 \times 10^{-3} \text{ T} \cdot \text{m}^2$$