

A helium nucleus in interstellar space has a mass of 6.4×10^{-24} g and charge 1.6×10^{-19} C and sits in a uniform field of 10^{28} T. What is its period of revolution around the magnetic field?

A charged dust particle with mass 10^{-5} g and charge 1 nC, sits in a magnetic field with $B = 10^{-9}$ T. If the radius of the particle's orbit is 10^5 km, what is the velocity of the particle?

For a circular wire of radius R and current I has N turns, find the magnetic moment and the torque if its symmetry axis makes an angle θ with the background uniform magnetic field.

Consider a uniformly charged sphere of radius R and total charge Q , rotating about its symmetry axis with angular frequency, Ω . What is the magnetic moment of this sphere?

As per the previous problem, suppose this sphere has mass M and sits in a uniform magnetic field with strength B . if the sphere's magnetic moment is displaced a small angle from this field, what is its period of oscillation?