

Week 23 - Magnetism

Read Page 266 (Electromagnetism)

TQ1. What did Oersted find out about a wire that was carrying a current?

TQ2. In the “first right hand rule,” what does your thumb point in the direction of? What do your curved fingers point in the direction of?

TQ3. How do you make a solenoid?

TQ4. In the “second right hand rule,” what does your thumb point in the direction of? What do your curved fingers point in the direction of?

TQ5. What is the equation for the force of magnetism? (we will not use the $\sin \theta$, so you can remove it or assume that it is $\sin 90^\circ = 1$)

CQ6. In the “third right hand rule,” what does your thumb point in the direction of? Your index finger? Your middle finger?

QQ7. An electron ($q = 1.6 \times 10^{-19}$ C) moves at 5.0×10^6 m/s perpendicular to a magnetic field of strength 4.0 T. What is the magnitude of the magnetic force on the electron?

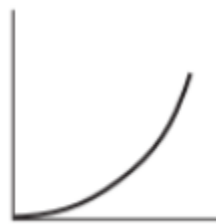
QQ8. A particle with a charge of 4.8×10^{-6} C experiences a force of 38.4 N when it is traveling perpendicular to a magnetic field of 4.0 T. How fast is this particle traveling?



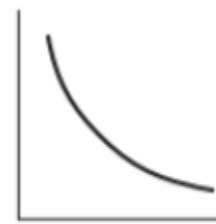
(A)



(B)



(C)



(D)

CQ9. Which graph above best represents the relationship between magnetic force and charge of a particle in a magnetic field?

CQ10. Which graph above best represents the relationship between magnetic force and velocity of a particle in a magnetic field?

CQ11. Which graph above best represents the relationship between magnetic force and the magnetic field?