

Unit 5J Magnetism Practice Problems

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Date:

Work each of the following problems	. SHOW ALL WORK.
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1.	Using the right-hand rule, in which direction will the magnetic force act on a positively charged particle that is moving to the left and experiencing a magnetic field straight ahead?			
2.	Using the right-hand rule, in which direction will the magnetic force act on a negatively charged particle that is moving to the left and experiencing a magnetic field straight down?			
3.	Two charged particles with opposite signs but the same magnitude of charge enter a magnetic field that is perpendicular to their direction of motion. How will the motion of the two particles differ when they enter the magnetic field?			
4.	An electron that is moving to the right experiences a magnetic field of 2.5 T directed upward. If the force on the electron is 2.4×10^{-12} N, what is the speed of the electron?			
5.	A proton that is moving north at 7.5×10^7 m/s encounters a uniform magnetic field of 4.5 T directed east. What are the magnitude and direction of the force acting on the proton?			



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6.	A particle moving at 3.6 x 10^6 m/s experiences a force of 1.2 x 10^{-10} N when it encounters a magnetic field of 3 T. What is the magnitude of the charge on the particle?
7.	A proton moving to the left at 4.2×10^8 m/s experiences a force of 1.4×10^{-10} N downward. What are the direction and magnitude of the magnetic field acting on the proton?
8.	An electron moves to the west at 1.2×10^6 m/s and experiences a magnetic force of 6.0×10^{-13} N upward. What are the magnitude and direction of the magnetic field acting on the electron?