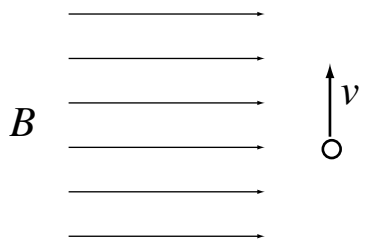
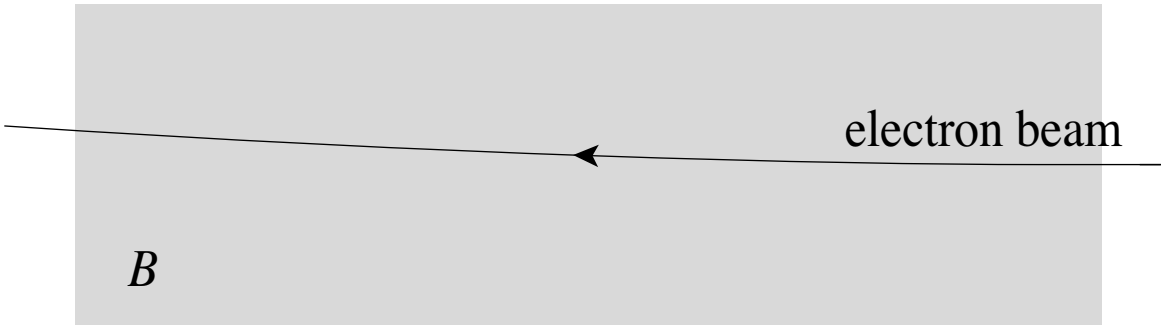
A negative particle moves upward along the trajectory shown. A magnetic field points toward the right.




In which direction is the magnetic force on the particle?

1. up
2. down
3. into the plane of the drawing
4. out of the plane of the drawing
5. left
6. right

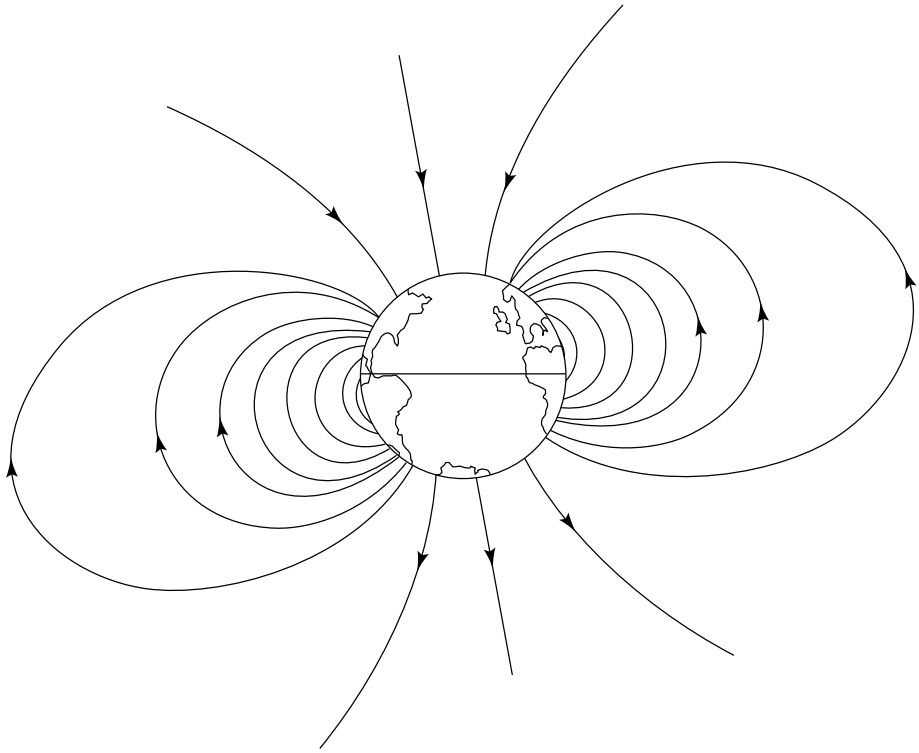
A beam of electrons enters a region with a magnetic field as shown below.




If the beam is deflected upward, the magnetic field must be oriented

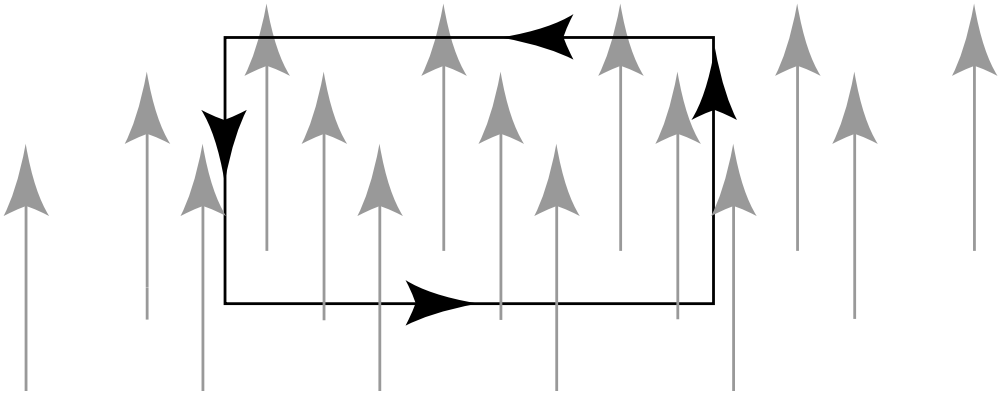
1. downward
2. up
3. into the plane of the drawing
4. out of the plane of the drawing
5. to the left
6. to the right
7. none of the above - it is at an angle
8. need more information to determine

Cosmic rays (atomic nuclei stripped bare of their electrons) would continuously bombard Earth's surface if most of them were not deflected by Earth's magnetic field. Given that Earth is, to an excellent approximation, a magnetic dipole, the intensity of cosmic rays bombarding its surface is greatest at the



1. poles.
2. mid-latitudes.
3. equator.

A rectangular loop is placed in a uniform magnetic field with the plane of the loop parallel to the direction of the field. If a current is made to flow through the loop in the sense shown by the arrows, the field exerts on the loop:



1. a net force.
2. a net torque.
3. a net force and a net torque.
4. neither a net force nor a net torque.