
Worksheet: How Magnetic Forces Affect Moving Charges

<https://study.com/academy/lesson/how-magnetic-forces-affect-moving-charges.html>

1. A magnetic field cannot exert a force on a charged particle unless:

- the magnetic field and the particle move together.
- there is relative motion between the field and the particle.
- the particle is moving parallel to the field.
- the particle is stationary relative to the magnetic field.
- the particle is negatively charged.

2. The strength of the force on the particle is dependent on all of the following, except:

- the strength of the magnetic field.
- the amount of charge on the particle.
- the speed of the particle relative to the magnetic field.
- the source of the magnetic field.
- the particle's direction of travel relative to the magnetic field.

3. A charged particle will experience the maximum force:

- when traveling opposite to the magnetic field.
- when traveling neither parallel nor perpendicular to the magnetic field.
- when traveling perpendicular to the magnetic field.
- when the relative motion is at a maximum.
- when traveling parallel to the magnetic field.

4. The direction of the force on a charged particle is dependent on:

- the amount of charge on the particle.
- the speed of the particle relative to the field.
- the sign of the charge on the particle.
- the magnitude of relative motion between the particle and the magnetic field.
- the source of the magnetic field.

5. A magnetic field exerts a force on a charged particle:

- that is perpendicular to both the magnetic field and the particle's direction of travel.
- that is parallel to both the magnetic field and the particle's direction of travel.
- that is in the same direction as the magnetic field.
- that is perpendicular to the magnetic field only.
- that is in the same direction as the particle's direction of travel.

