



Name _____ Class _____ Date _____

1 This diagram represents

Key
 x Magnetic flux line into page
 o Magnetic flux line out of page

A the magnetic field around a wire in which electrons are flowing
 B protons and electrons flowing around an electrical wire
 C protons and neutrons flowing around an electrical wire
 D an electromagnetic field around an electrical wire

2 The diagram below shows an electron, e, located in a magnetic field.

There is **no magnetic force on the electron when it moves**

A toward the right side of the page
 B toward the top of the page
 C into the page
 D out of the page

3 In a mass spectrometer, the strength of the magnetic field is 1.0×10^{-1} tesla. Upon entering the chamber of the spectrometer, a positive ion traveling at 2.0×10^6 meters per second perpendicular to the magnetic field experiences a magnetic force having a magnitude of 3.2×10^{-14} newton. The charge on this positive ion is

A 6.4×10^{-21} C
 B 1.6×10^{-18} C
 C 3.2×10^{-17} C
 D 6.4×10^{-16} C

4 In the diagram below, a wire carrying an electron current into the page, as denoted by X, is placed in a magnetic field.

The magnetic field exerts a force on the wire toward point

A 1 C 3 D 4 B 2

5

PREVIEW

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7

A ↑
 B ↓
 C →
 D ←

8

A moving
 C positive
 D negative

9 The diagram below shows the lines of magnetic force between two north magnetic poles.

At which point is the magnetic field strength greatest?

A 1 C 3
 B 2 D 4

10 The diagram below represents magnetic lines of force within a region space.

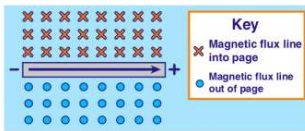
The magnetic field is strongest at point

A 1
 B 2
 C 3
 D 4



ANSWER KEY

This diagram represents

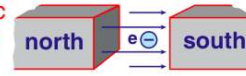


- A** the magnetic field around a wire in which electrons are flowing
- B** protons and electrons flowing around an electrical wire
- C** protons and neutrons flowing around an electrical wire
- D** an electromagnetic field around an electrical wire

(a)

The diagram below shows an electron, e , located in a magnetic field.

There is **no** magnetic force on the electron when it moves



(a)

- A** toward the right side of the page
- B** toward the top of the page
- C** into the page
- D** out of the page

In a mass spectrometer, the strength of the magnetic field is 1.0×10^{-1} tesla. Upon entering the chamber of the spectrometer, a positive ion traveling at 2.0×10^6 meters per second perpendicular to the magnetic field experiences a magnetic force having a magnitude of 3.2×10^{-14} newton. The charge on this positive ion is

- A** 6.4×10^{-21} C
- B** 1.6×10^{-19} C
- C** 6.4×10^{-9} C
- D**

(b)

In the diagram below, a wire carrying an electron current into the page, as denoted by X, is placed in a magnetic field.

The magnetic field exerts a force on the wire toward point



(a)



PREVIEW

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- A** →
- C** →
- D** ←

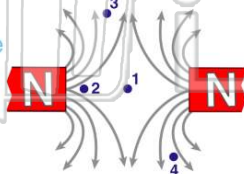


- D** negative



The diagram below shows the lines of magnetic force between two north magnetic poles.

At which point is the magnetic field strength greatest?

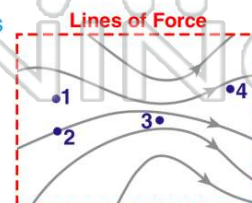


(b)

- A** 1
- B** 2
- C** 3
- D** 4

The diagram below represents magnetic lines of force within a region space.

The magnetic field is strongest at point



(c)

- A** 1
- B** 2
- C** 3
- D** 4