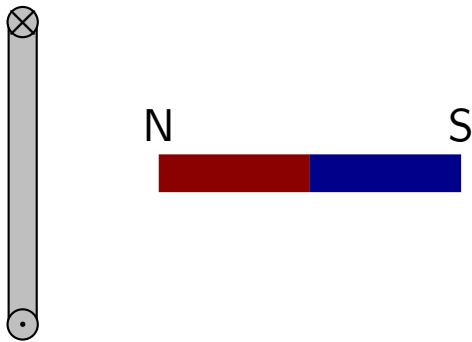


Question 1

A bar magnet is placed next to a loop that carries a current. A side view is illustrated.

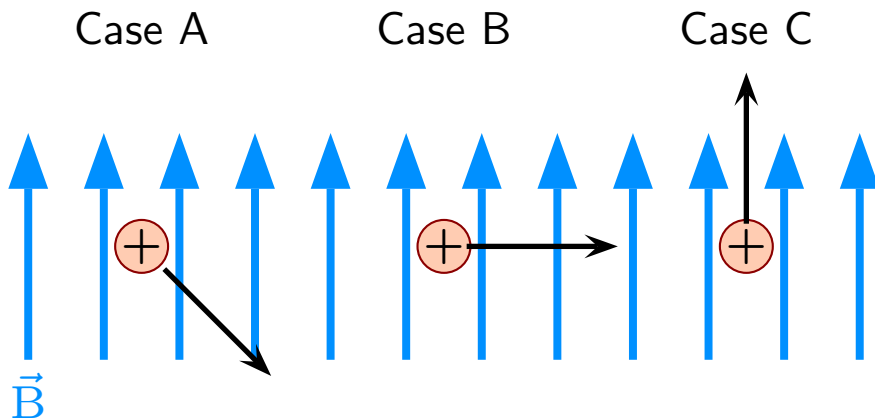


Which of the following represents the direction of the force exerted by the loop on the magnet?

1. \rightarrow
2. \leftarrow
3. \uparrow
4. \downarrow
5. Into screen/board
6. Out of screen/board

Question 2

Identical positively charged particles move through identical magnetic fields with identical speeds, in directions indicated by black vectors, as illustrated.

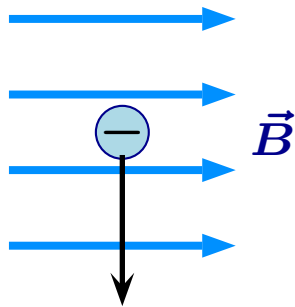


Which of the following ranks the magnitudes of magnetic forces?

1. $B > A = C$
2. $C > B > A$
3. $B > A > C$
4. $C > A > B$
5. $A > C > B$

Question 3

A negatively charged particle moves vertically down at the instant that a magnetic field is turned on. The relative directions are indicated below.

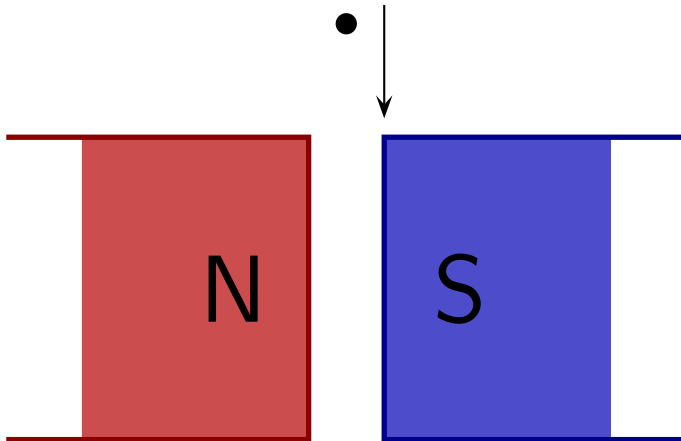


Determine the direction of the force exerted by the magnetic field on the charged particle.

1. \rightarrow
2. \leftarrow
3. \downarrow
4. Into the screen/board.
5. Out of the screen/board.

Question 4

An alpha particle (two protons and two neutrons) is fired into the gap between two closely spaced magnets as illustrated.



Which of the following best represents the direction of the force exerted by the magnets on the alpha particle while it is between them?

1. ←
2. →
3. Into the board
4. Out of the board