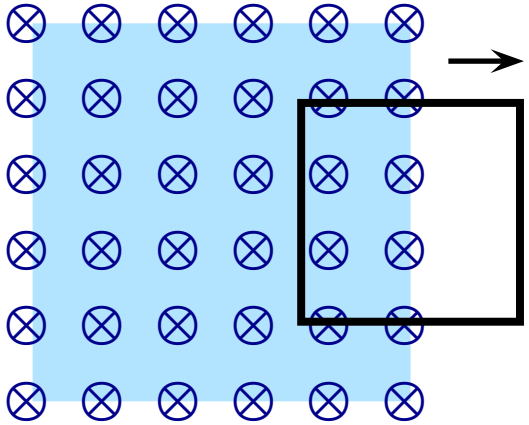
Question 1

A loop passes through a region of constant magnetic field at a constant speed as illustrated.

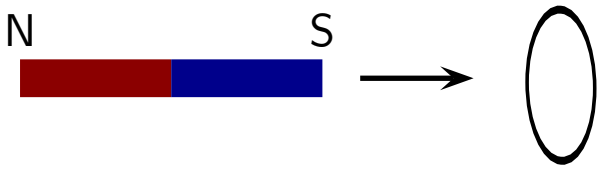


At the instant depicted in the illustration the current in the loop is:

1. Counter-clockwise
2. Clockwise
3. Zero
4. None of the above/not enough info.

Question 2

A magnet is pushed toward a loop in the indicated direction.

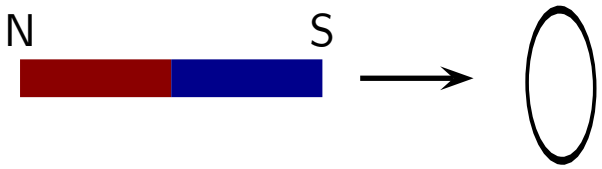


Which of the following is true as the magnet approaches the loop?

1. The current in the loop is counterclockwise (viewed from right).
2. The current in the loop is clockwise (viewed from right).
3. There is no current in the loop.

Question 3

A magnet is pushed toward a loop in the indicated direction.

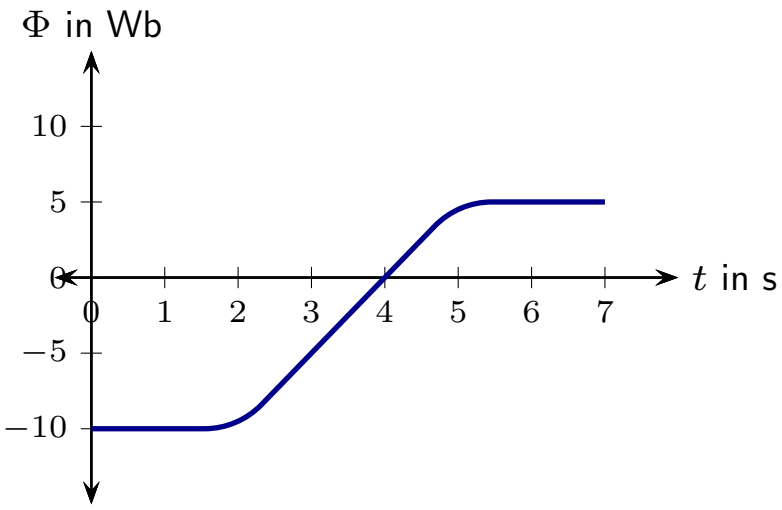


Which of the following is true regarding the force exerted by the loop on the magnet as the magnet approaches the loop?

1. The loop exerts a force to the left.
2. The loop exerts a force to the right.
3. The loop exerts no force.
4. The loop exerts a force up.
5. The loop exerts a force down.

Question 4

A loop is placed in an external magnetic field. The flux through the loop as time passes is plotted below.



Which of the following is true regarding the magnitude of the induced EMF, $\mathcal{E}$?

1. $\mathcal{E}$ is largest from $0\,\mathrm{s}$ to $2\,\mathrm{s}$.
2. $\mathcal{E}$ is largest just after $2\,\mathrm{s}$.
3. $\mathcal{E}$ is largest between $2\,\mathrm{s}$ to $5\,\mathrm{s}$.
4. $\mathcal{E}$ is largest just before $5\,\mathrm{s}$.
5. $\mathcal{E}$ is largest from $5\,\mathrm{s}$ to $7\,\mathrm{s}$.