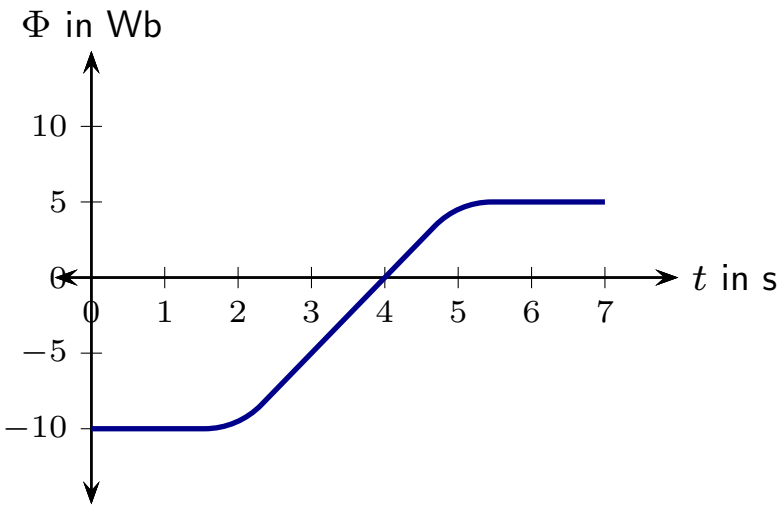
# Question 1

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 $7\,\mathrm{s}$.

# Warm Up Question 1

A rectangular loop lies perpendicular to a region in which the magnetic field is uniform as illustrated in the Figure in Stop to Think 30.5. The loop is initially at rest and is given a brief kick to the left. Describe the direction of the force that the magnetic field subsequently exerts on the loop.

1. Right.
2. Left.
3. Up.
4. Down.
5. Out of the page.
6. Into the page.

# Warm Up Question 2

A loop such as that illustrated in Fig. 30.35 is placed in a uniform magnetic field which stays constant as time passes. The loop rotates about the illustrated axle. Does the flux through the loop stay the constant while this happens? Explain your answer.

1. Not constant. Angle constantly changes.
2. Constant. Area and field are constant.

# Question 2

A loop rotates in a uniform magnetic field with orientations as described in class. The axle of the loop is perpendicular to the magnetic field.

Zog claims that: "If the speed with which the loop rotates increases steadily then the current through the loop stays constant, since the magnetic field and the area of the loop are constant." Is this:

1. Definitely true.
2. Definitely false.
3. Possibly/partly true.
4. Possibly/partly false.

# Question 3

A loop is forced to rotate in a uniform magnetic field with orientations as described in class. The angular velocity of the loop is constant.

While the loop rotates, which of the following is true?

1. The magnetic field does not exert a torque on the loop.
2. The magnetic field exerts a torque on the loop and this opposes the rotation.
3. The magnetic field exerts a torque on the loop and this is in the same sense as the rotation.