

CONCEPTUAL PROBLEMS, Chapter 31

Phys 2401, Dr. Huang

Fill in a **T/F** answer for each statement below:

1. [] Changing magnetic flux can induce an emf in a circuit.
2. [] The magnitude of induced emf (or electric field) is inversely proportional to the time rate of changes of magnetic flux through the circuit.
3. [] Lenz's law can be used to determine the direction of the induced emf or current.
4. [] An electric field is induced by a changing magnetic flux, even in free space, without a conductor.
5. [] Maxwell's four equations, together with the Lorentz force law, give a complete description of all classical electromagnetic interactions.
6. [] A large, steady magnetic flux through a circuit induces a large emf.
7. [] A motional emf could be generated within a piece of a conductor, as the conductor moves through a uniform magnetic field.
8. [] Lenz's law states that the induced current and induced emf in a conductor are in such a direction as to enhance the magnetic flux change that produced them.
9. [] An induced electric field is a conservative field, just like a static electric field.