Electromagnetism
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Lecture - 80
Laws of electromagnetism so far

After introducing the concepts of inductance, let us see what kind of situation we have. What are the laws, that we have that learned so far. Before Maxwell came into the field of Electromagnetism and transformed it, in a different transformed it into something else, let us see what we have learnt about the Laws of electromagnetism.

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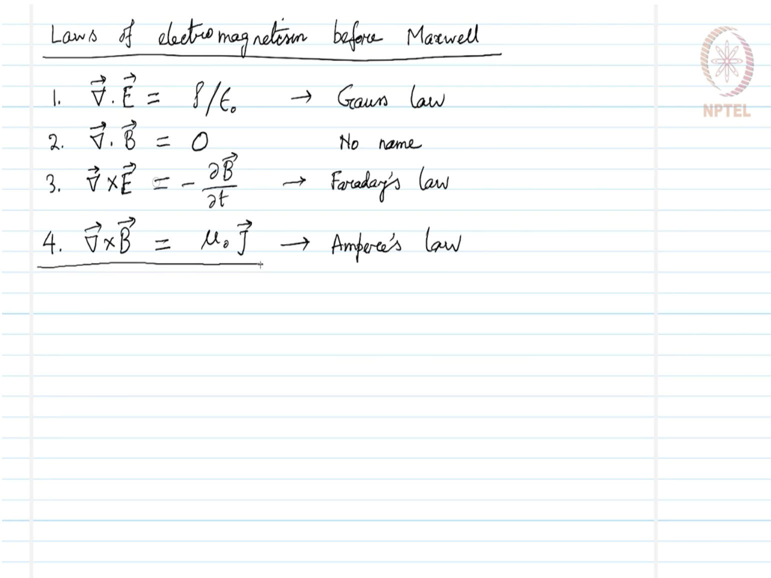

So far, we have learnt that the diversions of an electric field is given as rho over epsilon naught, this is called the Gauss law. The second thing that we have learnt is, the diversions of a magnetic field B, that is always 0 and there is no name to this law.

The third thing that we just learned in the context of induction was the curl of the electric field is not always 0, if there is the time varying magnetic field, the curl of electric field is minus del B del t. This is the Faraday's law. And the last one is the curl of a magnetic field.

This one is mu naught times the volume current density this is known as the Ampere's law. This is something we have learnt so far in the context of electromagnetism. And now we will look into this equation, the last one and try to see whether this is valid in every context or there are anomalies with this equation.