Maxwell's Equations in English

Gauss's Law: $\oint_S \vec{E} \cdot d\vec{A} = \frac{q_{enc}}{\epsilon_0}$

Gauss's Law for B: $\oint_S \vec{B} \cdot d\vec{A} = 0$

Faraday's Law: $\oint_L \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt}$

Ampere's Law: $\oint_L \vec{B} \cdot d\vec{s} = \mu_0 I_{enc} + \mu_0 \epsilon_0 \frac{d\Phi_E}{dt}$

Maxwell's Equations in English

Left side is the field that is being produced.

$$\oint_S \vec{E} \cdot d\vec{A} = \frac{q_{enc}}{\epsilon_0}$$

$$\oint_S \vec{B} \cdot d\vec{A} = 0$$

$$\oint_L \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt}$$

$$\oint_L \vec{B} \cdot d\vec{s} = \mu_0 I_{enc} + \mu_0 \epsilon_0 \frac{d\Phi_E}{dt}$$

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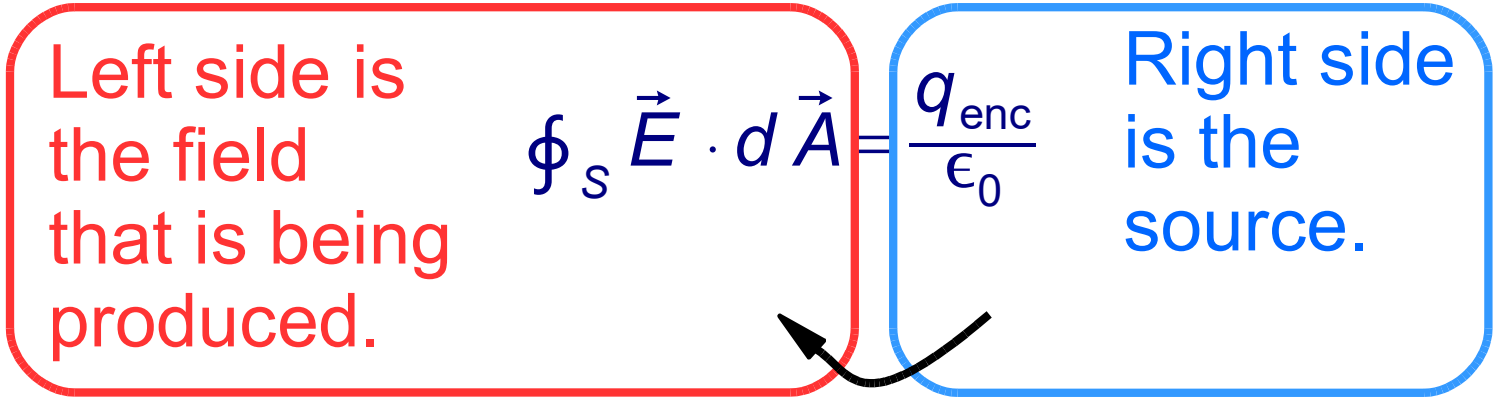
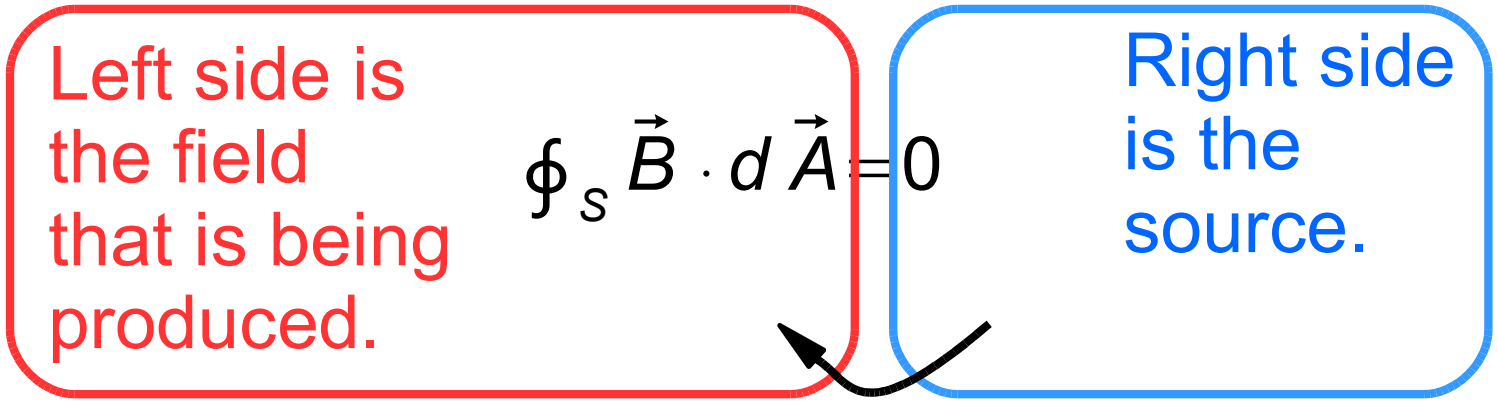
Right side is the source.

Maxwell's Equations in English



Charges produce electric field.

Maxwell's Equations in English



There is no charge-like source of magnetic field.

Maxwell's Equations in English

Changing magnetic flux produces electric field.

Left side is the field that is being produced.

$$\oint_L \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt}$$

Right side is the source.

Maxwell's Equations in English

currents (moving charges) produce magnetic field
and
changing electric flux produces magnetic field.

Left side is the field that is being produced.

$$\oint_L \vec{B} \cdot d\vec{s} = \mu_0 I_{enc} + \mu_0 \epsilon_0 \frac{d\Phi_E}{dt}$$

Right side is the source.

Maxwell's Equations in English

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