

Gauss's law has to do with electric flux: $\Phi_E = \oint \vec{E} \cdot d\vec{A} = \frac{q_{\text{enclosed}}}{\epsilon_0}$

Gauss's law for magnetism has to do with magnetic flux:

- Because a magnetic monopole has never been found in nature or in a manmade experiment, every magnetic field line is a closed loop.
- Therefore, no matter what shape the gaussian surface has, every magnetic field line which enters the gaussian surface will also leave the gaussian surface:

$$\Phi_B = \oint \vec{B} \cdot d\vec{A} = 0$$

- The above equation, Gauss's law for magnetism, is the second of Maxwell's equations which are a collection of equations which fully describe electromagnetism.

