

1 Gauss Law

Gauss Law

Law	Formula
Gauss Law	$\epsilon_0 \Phi = q_{enc}$
Flux Through Gaussian Surface	$\Phi = \oint \vec{E} \cdot d\vec{A}$

Applications

Law	Formula
conducting surface	$E = \frac{\sigma}{\epsilon_0}$
Line of Charge	$E = \frac{\lambda}{2\pi\epsilon_0 r}$
sheet of charge	$E = \frac{\sigma}{2\epsilon_0}$
Spherical Shell	$\frac{1}{4\pi\epsilon_0} \frac{q}{r^2}$

Electric field in a uniform sphere of charge

Formula	$E = (\frac{q}{4\pi\epsilon_0 R^3})r$
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