

## All of physics, circa 1905

$\int \vec{\mathbf{E}} \cdot \hat{\mathbf{n}} da = \frac{1}{\varepsilon_0} \int \rho d^3r$	[Gauss, Electricity]
$\oint \vec{\mathbf{E}} \cdot d\vec{\ell} = -\frac{d}{dt} \int \vec{\mathbf{B}} \cdot \hat{\mathbf{n}} da$	[Faraday]
$\int \vec{\mathbf{B}} \cdot \hat{\mathbf{n}} da = 0$	[Gauss, Magnetism]
$\oint \vec{\mathbf{B}} \cdot d\vec{\ell} = \mu_0 \int \vec{\mathbf{J}} \cdot \hat{\mathbf{n}} da + \mu_0 \varepsilon_0 \frac{d}{dt} \int \vec{\mathbf{E}} \cdot \hat{\mathbf{n}} da$	[Amperé-Maxwell]
$\left[ \int \vec{\mathbf{J}} \cdot \hat{\mathbf{n}} da = -\frac{d}{dt} \int \rho d^3r \right]$	[Charge conservation]
$\int \vec{\mathbf{G}} \cdot \hat{\mathbf{n}} da = -4\pi G \int \rho_m d^3r$	[Gauss, Gravity]
$\oint \vec{\mathbf{G}} \cdot d\vec{\ell} = 0$	[Newton]
$\int \vec{\mathbf{J}}_m \cdot \hat{\mathbf{n}} da = -\frac{d}{dt} \int \rho_m d^3r$	[Mass conservation]
$\vec{\mathbf{F}} = q(\vec{\mathbf{E}} + \vec{\mathbf{v}} \times \vec{\mathbf{B}}) + m\vec{\mathbf{G}}$	[Lorentz-Newton]
$\frac{d\vec{\mathbf{p}}}{dt} = \vec{\mathbf{F}}$	[Newton]
$\vec{\mathbf{p}} = m\vec{\mathbf{v}}$	[Newton]