

# Physics formulas

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## 1 Electromagnetism

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### 1.1 Constants

Coulomb konstant  $k = 8.987551787 \times 10^9 Nm^2/C^2$   
Epsilon-nought  $\epsilon_0 = 8.854 \times 10^{-12} C^2/Nm^2$

### 1.2 Formulas

**Coulomb's law**  $F = \frac{1}{4\pi\epsilon_0} \frac{|q_1 q_2|}{r^2}$

**Electric field**  $\vec{E} = \frac{\vec{F}_0}{q_0}$

**E-field point charge**  $\vec{E} = \frac{1}{4\pi\epsilon_0} \frac{q}{r^2} \hat{r}$

**Electric flux**  $\Phi_E = \int E \cos \phi \, dA = \int E_{\perp} dA = \int \vec{E} \cdot d\vec{A}$