

Fields

Electric

Gravitational

Force

$$F_Q = k \frac{q_1 q_2}{r^2}$$

(Coulomb's Law)

$$F_g = \frac{G m_1 m_2}{r^2}$$

(Newton's Law of Universal Gravitation)

Field Intensity

$$\vec{E} = \frac{\vec{F}_Q}{q}$$

(force per unit charge)

$$\vec{g} = \frac{\vec{F}_g}{m}$$

(force per unit mass)

Field Intensity
(point source)

$$|\vec{E}| = \frac{kq}{r^2} \leftarrow \text{source}$$

$$|\vec{g}| = \frac{Gm}{r^2} \leftarrow \text{source}$$

* magnitude only
* direction is defined by the force acting on a positive test charge.

* direction is always radially inward

