FUNDAMENTAL PHYSICS LAWS

NEWTON'S SECOND LAW

$$F = ma$$

Force equals mass times acceleration. Defines the relationship between motion and force.

MASS-ENERGY EQUIVALENCE

$$E = mcÂ²$$

Energy equals mass times the speed of light squared. Basis of nuclear physics.

UNIVERSAL GRAVITATION

$$F = G(mâ,□mâ,, / rÂ²)$$

The gravitational force between two masses decreases with the square of the distance.

OHM'S LAW

$$V = IR$$

Voltage equals current times resistance in an electrical circuit.

FIRST LAW OF THERMODYNAMICS

$$Î”U = Q - W$$

Energy cannot be created or destroyed, only transformed (Conservation of Energy).

COULOMB'S LAW

$$F = k(qâ,□qâ,, / rÂ²)$$

Calculates the electrostatic force between two electrically charged particles.

WAVE EQUATION

$$v = fÎ»$$

The velocity of a wave is the product of its frequency and wavelength.

HEISENBERG UNCERTAINTY

$$Î”x Î”p â‰¥ h / 4Ï€$$

One cannot simultaneously know the exact position and momentum of a particle.