

Physics Notes

Newton's second law states that the net force on an object is equal to the time derivative of its momentum. For an object of constant mass this reduces to $F = m \cdot a$, where F is force in newtons, m is mass in kilograms, and a is acceleration in metres per second squared.

Conservation of energy in a closed system means the total energy — kinetic plus potential plus thermal plus other forms — does not change over time. Energy may be converted between forms but is never created or destroyed.

The speed of light in vacuum, denoted c , is exactly 299,792,458 metres per second. It is a fundamental constant and the upper bound on the speed at which information can travel through space.