Dinamics

D.1. Newton's laws (1687) see
http://csep10.phys.utk.edu/astr161/index.html

Rules of Reasoning in Philosophy (following Wikipedia) N-am facut niciodata asta

Rule 1: *We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances.*

Rule 2: *Therefore to the same natural effects we must, as far as possible, assign the same causes.*

Rule 3: *The qualities of bodies, which admit neither intensification nor remission of degrees, and which are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever.*

Rule 4: *In experimental philosophy we are to look upon propositions inferred by general induction from phenomena as accurately or very nearly true, not withstanding any contrary hypothesis that may be imagined, till such time as other phenomena occur, by which they may either be made more accurate, or liable to exceptions.*

First law, law of inertia (following Wikipedia)

> There exists a set of inertial reference frames relative to which all particles with no net force acting on them will move without change in their velocity. This law is often simplified as "**A body persists in its state of rest or of uniform motion unless acted upon by an external unbalanced force**.

Second law

> Observed from an inertial reference frame, **the net force on a particle is equal to the time rate of change of its linear momentum**(the linear momentum is defined by the product $\vec{p} = m\vec{v}$):
>
> $$\vec{F} = \frac{\mathrm{d}\vec{p}}{\mathrm{d}t} = \frac{\mathrm{d}(m\vec{v})}{\mathrm{d}t} \qquad \text{(D1)}$$
>
> When mass is constant, this law is often stated as, "Force equals mass times acceleration:
>
> $$\vec{F} = m\vec{a} = m\ddot{\vec{r}} \qquad \text{(D1')}$$

Third law

> Whenever a particle *A* exerts a force on another particle *B*, *B* simultaneously exerts a force on *A* with the same magnitude in the opposite direction. The strong form of the law further postulates that these two forces act along the

same line. This law is often simplified into the sentence, "**To every action there is an equal and opposite reaction.**"

Examples at will