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| Phenomena and cases | Important quantities, definitions and special cases |
| * Collisions * Elastic * Inelastic * Perfectly inelastic * Explosions * Single mass begin hit/pulled by a force ~~(Impulse)~~ * Multiple masses pushing/pulling each other ~~(Isolated Systems)~~   + Horizontal Fnet=0   + Vertical Fnet=0   + All directions Fnet=0 | * Mass * *mass before* = *mass after* * *mass before*≠ *mass after* * Velocity * *Must be treated as a vector (components)* * *velocity before* = *velocity after* * *velocity before*≠*velocity after* * Momentum * *Must be treated as a vector (components)* * *Is in the same direction as velocity* * *momentum before* = *momentum after* * *momentum before*≠*momentum after* * Time interval * If time interval of interaction is very short then Δp≈0 * If time interval of interaction is not short then Δp≠0 * Impulse * Equal to the change in momentum * Area under a force vs. time graph (integral) |

Laws

* If net external force on the system is zero then the system’s momentum is the same before and after.
* The rate of change of momentum is equal to the net external force acting on an object.