Collisions

Def: A collision is an event in which 2 or more objects interact for a very short period of time. During this time, the external forces (if any) on the system are much smaller than the internal impulsive forces between the objects and thus can be neglected. Therefore, the system is an isolated system and the total linear momentum of system will be conserved!

Types of collisions

1. Elastic Collsion – The momentum and KE of the system is conserved.

$$\vec{p}_i = \vec{p}_f \text{ and } K_i = K_f$$

2. Inelastic Collision - The momentum of system is conserved but KE is not.

$$\vec{p}_i = \vec{p}_f \text{ and } K_f < K_i$$

3. Perfectly Inelastic Collision - Two objects stick together after a collision and move off with common velocity. Maximum loss of KE.

$$\vec{p}_i = \vec{p}_f \text{ and } K_f < K_i$$