

# Physics Notes

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# 1 Momentum And Impulse

## 1.1 Definition of Momentum

- vector describing how difficult it is to stop a moving object
- Total Momentum is the sum of individual momenta

$$p = mv$$

## 1.2 Impulse

- Impulse is change in Momentum ( $J$ )

$$J = \Delta p$$

## 1.3 Relationship between Force and $\Delta p$

$$F = ma$$

$$F = m \frac{dv}{dt}$$

$$F = \frac{d}{dt}(mv)$$

$$F = \frac{dp}{dt}$$

## 1.4 Impulse-Momentum Theorem

$$F = \frac{dp}{dt}$$

$$\int_0^t F \cdot dt = \int_{p_i}^{p_f} dp$$

$$J = F\Delta t = \Delta p$$