Summary: Linear Impulse-Momentum Equation 1
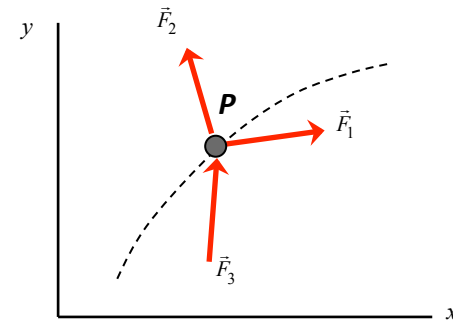
FUNDAMENTAL equation: the linear impulse-momentum equation:

$$m\vec{v}_2 = m\vec{v}_1 + \int\limits_{1}^{2} \left(\sum \vec{F} \right) dt$$

CONSERVATION: If there is no net force acting of the system in a given direction (say x), $\int\limits_{1}^{2} \left(\sum \vec{F} \right)_x dt = 0$ *, then linear momentum in that direction is conserved.*

SYSTEM CHOICE: Make your choice of system as "large" as reasonable – you want to make as many forces as possible INTERNAL to the system.