

$$1) \quad F_1 = 0, \quad F_2 = F_0 \hat{u}$$

$$t=0 \quad \textcircled{1} \textcircled{2} \longrightarrow X$$

$$t>0 \quad \begin{array}{c} F_1=0 \quad F_2 \longrightarrow \\ \textcircled{1} \cdots \cdots \textcircled{2} \longrightarrow X \\ \text{L} \quad \text{I} \quad \text{L} \\ \text{CM} \end{array}$$

$$R_{cm} = \frac{m_1 r_1 + m_2 r_2}{m_1 + m_2}, \quad m_1 = m_2 = m$$

$r_1 = 0 \text{ for all } t$

$$R_{cm} = \frac{\cancel{m} r_2}{2\cancel{m}} = \frac{r_2}{2} = \frac{x_2}{2}$$

$$F_2 = m a_2 = F_0$$

$$a_z = \ddot{x}_z = \frac{F}{m}$$

$$\dot{x}_z = \int_0^t \frac{F_0}{m} dt' = \frac{F_0}{m} t$$

$$x_z = \int \dot{x}_z = \int_0^t \frac{F_0}{m} t dt$$

$$x_z = \frac{1}{2} \frac{F_0}{m} t^2$$

∴

$$R_{cm} = \frac{F_0}{4m} t^2$$

$$V_{cm} = \frac{F_0}{2m} t$$