



$$0 = \sum \vec{F}_{\text{ext}} = M_{\text{tot}} \vec{a}_{\text{cm}}$$

$$\Rightarrow \vec{a}_{\text{cm}} = 0 \Rightarrow \vec{v}_{\text{cm}} = \text{Const} = 0$$

$$\Rightarrow X_{\text{cm}}^i = X_{\text{cm}}^f$$

$$X_{\text{cm}}^i = \frac{m_B \cdot 0 + m_f(-2) + m_s(-2)}{m_B + m_f + m_s} = \frac{-2(60 + 80)}{60 + 80 + 20} =$$

$$= -\frac{7}{9}$$



$$X_{\text{cm}}^f = \frac{m_B(-l) + m_s(-l) + m_f(2-l)}{m_B + m_s + m_f} = \frac{-360l + 160}{360} =$$

$$= -l + \frac{4}{9}$$

$$X_{\text{cm}}^i = X_{\text{cm}}^f$$

$$-\frac{7}{9} = -l + \frac{4}{9} \Rightarrow l = -\frac{11}{9}$$

לכן  $l = -\frac{11}{9}$  מרחק שלילי = פירוט של 55 מטר