

14. $y_{com} = ?$

$$y_{com} = \frac{m_1 y_1 + m_2 y_2}{m_1 + m_2}$$

$$= \frac{5(0) + 3(15.3)}{5 + 3}$$

$$y_{com} = 5.74m$$

b) $v_{com} = ?$ $v_{com} = \frac{m_1 v_1 + m_2 v_2}{m_1 + m_2}$

$$= \frac{5(10) + 3(10)}{5 + 3}$$

$$v_{com} = 10m/s \uparrow$$

c) $a_{com} = ?$ $a_{com} = \frac{m_1 a_1 + m_2 a_2}{m_1 + m_2}$

$$= \frac{(5)(0) + (3)(-9.8)}{5 + 3}$$

$$a_{com} = -3.675m/s^2 \uparrow$$