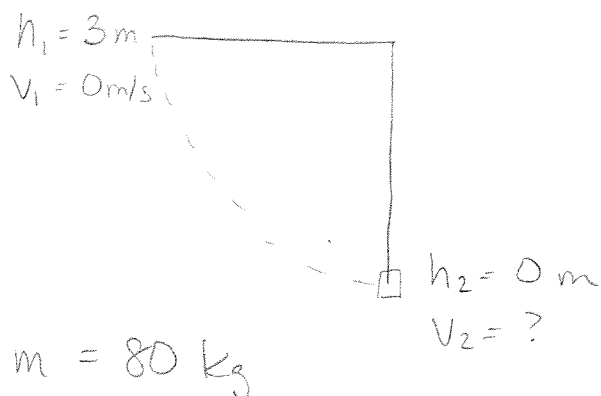


Find velocity of Tarzan @ bottom of swing:



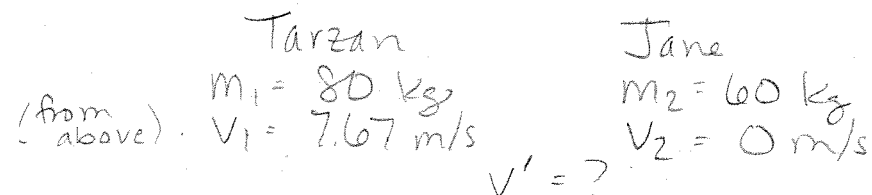
$$KE_1 + PE_1 = KE_2 + PE_2$$

$$\frac{1}{2}mv_1^2 + m \cdot g \cdot h_1 = \frac{1}{2}mv_2^2 + mgh_2$$

$$(80\text{ kg})(9.8\text{ m/s}^2)(3.0\text{ m}) = \frac{1}{2}(80\text{ kg}) \cdot v_2^2$$

$$v_2 = 7.67\text{ m/s}$$

Find velocity of Tarzan & Jane together @ bottom of swing:



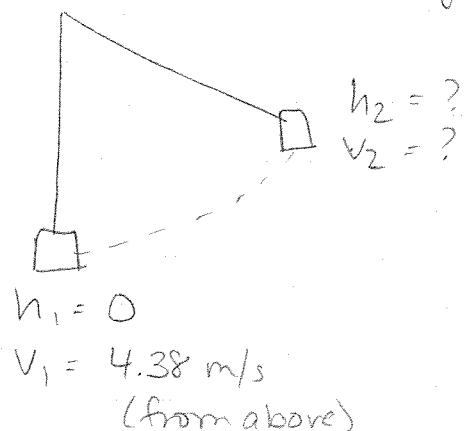
$$p_1 + p_2 = p'_1 + p'_2$$

$$m_1 \cdot v_1 + m_2 \cdot v_2 = (m_1 + m_2) \cdot v'$$

$$(80\text{ kg})(7.67\text{ m/s}) + 0 = (80\text{ kg} + 60\text{ kg}) \cdot v'$$

$$v' = 4.38\text{ m/s}$$

Find maximum height @ top of swing:



$$PE_1 + KE_1 = PE_2 + KE_2$$

$$m \cdot g \cdot h_1 + \frac{1}{2}mv_1^2 = m \cdot g \cdot h_2 + \frac{1}{2}mv_2^2$$

$$\frac{1}{2}(140\text{ kg})(4.38\text{ m/s})^2 = (140\text{ kg})(9.8\text{ m/s}^2) \cdot h_2$$

$$h_2 = .98\text{ m}$$