

Exercise 8-23



Linear momentum is conserved

$$\therefore m_1 v_{1x} + m_2 v_{2x} = (m_1 + m_2) v_x'$$

$$\therefore (0.400)(13.0) + (70.0)(0) = 70.4 v_x'$$

$$\therefore v_x' = 0.0739 \text{ m/s}$$

(b)

$$m_1 v_{1x} + m_2 v_{2x} = m_1 v_{1x}' + m_2 v_{2x}'$$

$$\therefore (0.400)(13.0) + (70.0)(0) = (0.400)(-7.50) + (70.0) v_{2x}'$$

$$\therefore v_{2x}' = 0.117 \text{ m/s}$$