

$$m_1 = 7.00 \text{ g} = .007 \text{ kg (bullet)}$$

$$v_1 = 190 \text{ m/s}$$

$$m_2 = 2.0 \text{ kg (block)}$$

$$v_2 = 0$$

Use momentum to find velocity of combination:

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

$$(.007 \text{ kg})(190 \text{ m/s}) + (2.0 \text{ kg})(0) = (.007 \text{ kg} + 2.0 \text{ kg}) v'$$

$$v' = .66 \text{ m/s}$$

Use projectiles to find d_x

$$h = -.95 \text{ m (down)}$$

$$a = -9.8 \text{ m/s}^2$$

$$d = \frac{1}{2} a t^2$$

$$-.95 \text{ m} = \frac{1}{2} (-9.8 \text{ m/s}^2) t^2$$

$$t = .44 \text{ sec}$$

$$d_x = v_x t$$

$$= (.66 \text{ m/s})(.44 \text{ sec})$$

$$d_x = .29 \text{ m}$$