



CP - Nov 18

$$M_1 V_1 + M_2 V_2 = (M_1 + M_2) V'$$

$M = .1 \text{ Kg}$ $M = 2 \text{ Kg}$
 $V = 30 \frac{\text{m}}{\text{s}}$ $V = 0$
 \rightarrow

Before





$$(M_a + M_b)$$

$$.1 \text{ Kg} + 2 \text{ Kg} = 2.1 \text{ Kg}$$

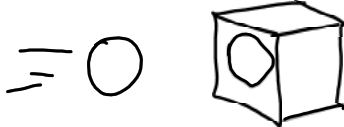
$$M_1 V_1 + 0 = (2.1 \text{ Kg}) V'$$


$$(.1 \text{ Kg}) \left(\frac{30 \text{ m}}{\text{s}} \right) = 2.1 \text{ Kg } V'$$

$$\frac{3 \text{ Kg m}}{\text{s}} = \frac{2.1 V'}{2.1}$$

$$\frac{3 \text{ m}}{2.1 \text{ s}} = V' = \boxed{1.43 \frac{\text{m}}{\text{s}}}$$

$V = 200 \frac{\text{m}}{\text{s}}$ $V = 0$
 $.02 \text{ Kg}$ $M = 1.6 \text{ Kg}$





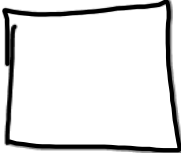

$$M_1 V_1 + M_2 V_2 = (M_1 + M_2) V$$

$$.02 \text{ Kg} \left(\frac{200 \text{ m}}{\text{s}} \right) + (1.6 \text{ Kg}) (0) = (1.6 + 0.02 \text{ Kg}) V$$

$$\frac{4 \text{ Kg m}}{\text{s}} = 1.62 \text{ Kg } V$$

$$\frac{4 \text{ Kg m}}{\text{s}} = \frac{1.62 \text{ Kg } V}{1.62 \text{ Kg}}$$

$$\left(\frac{2.47 \text{ m}}{\text{s}} \right) = V$$

$.01 \text{ Kg}$ 1.4 Kg $1.4 + .01 = 1.41 \text{ Kg}$
 $\equiv 0$  = 
 $v = ?$ $v = .3 \frac{\text{m}}{\text{s}}$

$m_1 v_1 + m_2 v_2 = 1.41 \left(.3 \frac{\text{m}}{\text{s}} \right)$
 ~~$.01 \text{ Kg}$~~ $v =$ = ~~$.42 \frac{\text{Kg m}}{\text{s}}$~~
 ~~$.01 \text{ Kg}$~~ $= 42 \frac{\text{m}}{\text{s}}$

$m_{\text{pellet}} = 52 \text{ g}$ $v = .182 \frac{\text{m}}{\text{s}}$
 $v = (.00052 \text{ Kg}) :$ $m_{\text{car}} = .53 \text{ Kg}$
 $= \left(.182 \frac{\text{m}}{\text{s}} \right) \left(.53 \text{ Kg} + .00052 \text{ Kg} \right)$
 $\quad \quad \quad .09655$
 $v = \left(.09655 \frac{\text{Kg m}}{\text{s}} \right) \left(.00052 \text{ Kg} \right)$
 $= \boxed{185.7 \frac{\text{m}}{\text{s}}}$
 Velocity of Pellet From gun

Velocity for a Crossman 760
 From the internet
 $\boxed{182.88 \frac{\text{m}}{\text{s}}}$
 we were 1.5% off