

Trial 2

b: ~~0.0240 s~~a₁: ~~0.0152 s~~a₂: ~~0.0732 s~~ $\Delta t_{ai} =$ s $v_{ai} =$

Show calculation.

$$\frac{.0095 \text{ m}}{.0152 \text{ s}} = .6250 \frac{\text{m}}{\text{s}}$$

 $\Delta t_{bi} =$ $v_{bi} =$

Show calculation.

0

 $\Delta t_{af} = a_2 - a_1$

Show calculation.

$$.0732 \text{ s} - .0152 \text{ s} = .0580 \text{ s}$$

 $v_{af} =$

Show calculation.

$$\frac{.0095 \text{ m}}{.0580 \text{ s}} = .1638 \frac{\text{m}}{\text{s}}$$

 $\Delta t_{bf} =$

Show calculation.

$$.0240 \text{ s}$$

 $v_{bf} =$

Show calculation.

$$\frac{.0095 \text{ m}}{.0240 \text{ s}} = .3958 \frac{\text{m}}{\text{s}}$$

 $P_i =$

Show calculation.

$$m_b v_{bi} - m_a v_{ai}$$

$$P_i = 1035.59 \left(0 \frac{\text{m}}{\text{s}}\right) - 524.169 \left(.6250 \frac{\text{m}}{\text{s}}\right)$$

$$= 0 \frac{\text{m}}{\text{s}} - 327.69 \frac{\text{m}}{\text{s}}$$

$$= -327.69 \frac{\text{m}}{\text{s}}$$

$P_f =$ Show calculation. $-m_b v_{bf} + m_a v_{af}$

$$\begin{aligned}
 & -1035.5 \text{ g} \left(.3958 \frac{\text{m}}{\text{s}} \right) + 524.16 \text{ g} \left(. \frac{\text{m}}{\text{s}} \right) \\
 & = -409.9 \text{ g} \frac{\text{m}}{\text{s}} + 85.86 \text{ g} \frac{\text{m}}{\text{s}} \\
 & = -324.0 \text{ g} \frac{\text{m}}{\text{s}}
 \end{aligned}$$

Percent difference between p_i and p_f .

$$\left| \frac{(-324.0) - (-327.6)}{(-324.0) + (-327.6) \frac{1}{2}} \right| = \frac{3.6}{325.8} = .011 \times 100 = 1.1 \%$$

Is momentum conserved? Explain error.

Refer to trial 1

$$P_i > P_f$$