conservation of momentum activity

Before

$\overrightarrow{v=.41}$ m/s

| .5 kg |

$v=0$ m/s

| 1.5 kg |

$p = m \cdot v$
$= .5 \cdot .41$
$= .205 \frac{kg \cdot m}{s}$

$p = m \cdot v$
$= 0$

$p = .205 \frac{kg \cdot m}{s}$
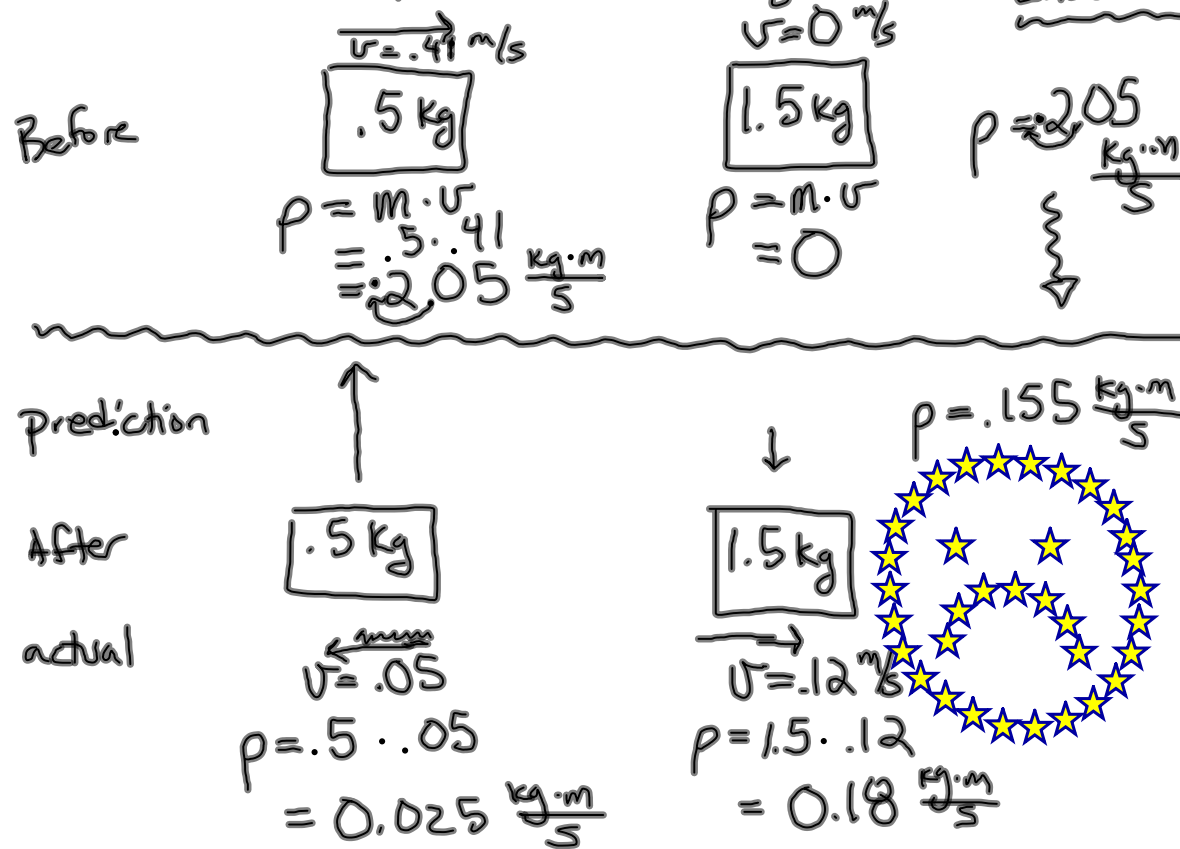
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Prediction

$p = .155 \frac{kg \cdot m}{s}$

After

| .5 kg |

| 1.5 kg |

actual

$\overleftarrow{v = .05}$

$v = .12$ m/s

$p = .5 \cdot .05$
$= 0.025 \frac{kg \cdot m}{s}$

$p = 1.5 \cdot .12$
$= 0.18 \frac{kg \cdot m}{s}$

$total = 0.18 - 0.025$
$= 0.155 \frac{kg \cdot m}{s}$

The momentum I have <u>before</u> a collision should be the same as the momentum after a collision.

1

before

$\vec{v} = .21$ m/s

$\boxed{.5 \text{ kg}}$

$p = {}^{+}0.105 \frac{\text{kg·m}}{\text{s}}$

$\vec{v} = .20$ m/s

$\boxed{.5 \text{ kg}}$

$p = 0.005 \frac{\text{kg·m}}{\text{s}}$

$p = {}^{-}0.10 \frac{\text{kg·m}}{\text{s}}$

prediction

after

$\boxed{.5 \text{ kg}}$

$\vec{v} = {}^{-}0.20$ m/s

$p = {}^{-} 0.1 \frac{\text{kg·m}}{\text{s}}$

$p = -0.005 \frac{\text{kg·m}}{\text{s}}$

$\boxed{.5 \text{ kg}}$

$\vec{v} = {}^{+}0.19$ m/s

$p = {}^{+}0.095 \frac{\text{kg·m}}{\text{s}}$

$p = -0.005 \frac{\text{kg·m}}{\text{s}}$

before

$\vec{v} = 0.62$ m/s

| 0.5 kg |

$\vec{v} = 0.22$ m/s

| 1.5 kg |

$p =$

$p =$

$p =$

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prediction

after

→

| 0.5 kg |

→

| 1.5 kg |

$p =$

$\vec{v} = 0.32$ m/s

$\vec{v} = 0.31$ m/s

$p =$

$p =$

$p =$