

PHYSICS A - Momentum Take Home Solution Examples

Generic Solutions to Take Home Problems will be posted on www.phyxx.net
Go to the *Canyon High* page and follow links to Physics A

Single object in motion

Given mass and momentum, solve for velocity

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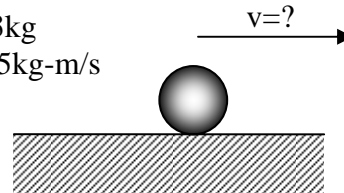
$$p = mv$$

$$v = \frac{p}{m}$$

$$v = \frac{15}{3} = 5$$

$$m=3\text{kg}$$

$$p=15\text{kg}\cdot\text{m/s}$$



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Impulse equals the force times the time and is equal on the hand and the block

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Inelastic – one object stationary,
Given initial velocity and masses,

Solve for final momentum

$$p_{\text{initial}} = m_1v_{1\text{initial}} + m_2v_{2\text{initial}}$$

$$p_{\text{initial}} = m_1v_{1\text{initial}} + 0 = p_{\text{final}}$$

$$p_{\text{final}} = m_1v_{1\text{initial}}$$

Solve for final velocity

$$m_1v_{1\text{initial}} + m_2v_{2\text{initial}} = (m_1+m_2)v_{(1+2)\text{final}}$$

$$v_{(1+2)\text{final}} = (m_1v_{1\text{initial}}) / (m_1+m_2)$$

