Monday, April 14/14
Physics 112

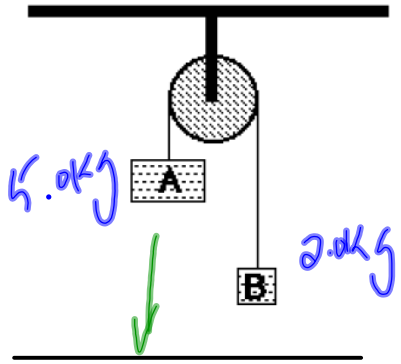
Midterm -> Wed., April 23/14

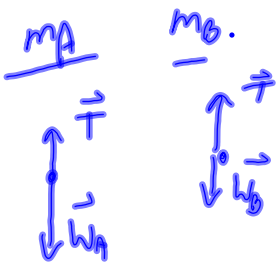
1. Lab - Atwood's Machine -> Due: Today, April 14/14
2. Bell Work - Atwood's Machine
3. Worksheet: Two-Body Problems -> Atwood's Machine
   Fletcher's Trolley
4. Newton's Third Law of Motion
5. Momentum
6. Impulse

## Bell Work - Monday, April 14/14 -> Atwood's Machine

Below is a picture of an Atwood's Machine: two masses attached to a frictionless, massless pulley (pretty neat how physicists dream up equipment like this, huh?).
The mass of block A is 5.0 kg, and the mass of B is 2.0 kg.

a) What is the acceleration of the system when the blocks are released?
b) How long will it take for block A to fall 2.0 m?



$\vec{F}_{net} = m_A\vec{a}$ | $\vec{F}_{net} = m_B\vec{a}$

$+T - W_A = m_A(-a)$ | $+T - W_B = m_B(a)$

$T - m_Ag = -m_Aa$ | $T - m_Bg = m_Ba$

$T = m_Ag - m_Aa$ | $T = m_Bg + m_Ba$

$m_Ag - m_Aa = m_Bg + m_Ba$

b) $\vec{d} = -2.0\,m$

$\vec{a} = \underline{\quad\quad}\ m/s^2$

$\vec{v}_i = 0\,m/s$

$t = ?$ s

$\vec{d} = \vec{v}_i t + \frac{1}{2}\vec{a}t^2$

$t = \sqrt{\frac{2\vec{d}}{\vec{a}}}$

$t = \underline{\quad\quad}$ s.

# Physics 112 - Midterm Topics

**Format: Problems**

-> Find **R** Analytically
-> Velocity-Time Graph
-> Freely-Falling Body Problem
-> Chapter 4 - Force Problem
-> Chapter 5 - Force Problem
-> L2 - Atwood's Machine
L1 - Fletcher's Trolley
-> Impulse-Momentum Theorem