Science 122

Friday, December 1/16

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

1. Worksheets (2) - HW
2. Electron-volt
3. Quantization of Energy

4. Photoelectric Effect
5. Worksheet - Energy of Photons, Work Function, Etc.

Physics 112

Friday, December 1/16

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

1. Worksheets:
   C6 - Kinetic Energy Page 238: PP #19-21
   C6 - Work-Kinetic Energy Theorem Page 245: PP #22-25 } HW

2. Reference/Zero Lines

3. Gravitational Potential Energy

4. Work-Gravitational Potential Energy Theorem

5. Worksheet - C6 - Gravitational Potential Energy Page 250: PP #27, 29
   Work-GPE TheoremPage 254: PP # 30-33

6. Hooke's Law

7. Applied Force vs Extension

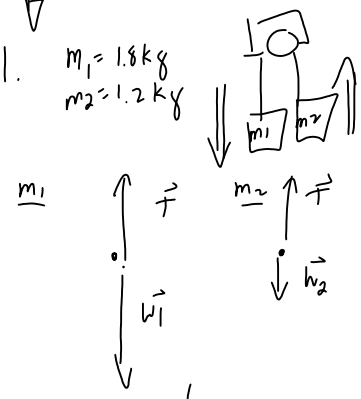
SA - Atwood's, $\vec{p}$, $\vec{J}$, etc.

Atwood's Machine

2 equations
m_1 ✓
m_2 ✓
solve a syst. of eq.

2 equations.
m a or m T
solve 1 eq.
solve 2 eq.

1. $m_1 = 1.8\,kg$
$m_2 = 1.2\,kg$



m_1: $F_{net} = m\vec{a}$
$+T - W_1 = m_1(-a)$
$T - m_1 g = -m_1 a$

m_2: $F_{net} = m\vec{a}$
$+T - W_2 = m_2(+a)$
$T - m_2 g = m_2 a$

$T = m_1 g - m_1 a$ $\quad T = m_2 g + m_2 a$

$m_1 g - m_1 a = m_2 g + m_2 a$
$m_1 g - m_2 g = m_2 a + m_1 a$
$m_1 g - m_2 g = a(m_2 + m_1)$

$$a = \frac{m_1 g - m_2 g}{m_1 + m_2}$$

$$a = \frac{(1.8)(9.80) - (1.2)(9.80)}{1.8 + 1.2}$$

$\Rightarrow a = 2.0\,m/s^2$

mag.

$\vec{a_1} = -2.0\,m/s^2$
$2.0\,m/s^2$, down

b) $\vec{T} = ?$

$T = m_1 g - m_1 a$
$T = (1.8)(9.80) - (1.8)(2.0)$
$T = 14\,N$
$\vec{T} = +14\,N$ or $14\,N$ up.

2. $m = 145\,kg$

$\vec{J} = -438\,kg\frac{m}{s}$

$\Delta\vec{v} = ?$

$\vec{J} = \vec{F}t = \Delta\vec{p}$

$= \vec{p_f} - \vec{p_i}$

$= m\vec{v_f} - m\vec{v_i}$

$= m(\vec{v_f} - \vec{v_i})$

$= m\Delta\vec{v}$

$\vec{J} = m\Delta\vec{v}$

$\Delta\vec{v} = \frac{\vec{J}}{m}$

$-0.293\,m/s$

3. $\vec{p_f} = 5.0\,kg\frac{m}{s}$

$m = 100.0\,g \rightarrow 0.1000\,kg$ (÷1000)

$\vec{J} = 9.0\,kg\,m/s$

$\vec{v_i} = ?$

$\vec{J} = \Delta\vec{p}$

$\vec{J} = \vec{p_f} - \vec{p_i}$

$\vec{J} = \vec{p_f} - m\vec{v_i}$

$m\vec{v_i} = \vec{p_f} - \vec{J}$

$\vec{v_i} = \frac{\vec{p_f} - \vec{J}}{m}$

$\vec{v_i} = -40\,m/s$

b) $8.5\,ms = 8.5\times10^{-3}\,s$.

$[1\,ms = 10^{-3}\,s]$

$\vec{F} = ?$

$\vec{J} = \vec{F}t$

$\vec{F} = \frac{\vec{J}}{t}$

$\vec{F} = +1.1\times10^{3}\,N$

4. $m = 2.3\,kg$

$\vec{v_i} = +5.5\,m/s$

a) $\vec{F} = -1.8\times10^{4}\,N$

$t = 2.9\times10^{-4}\,s$

$\vec{v_f} = ?$

$\vec{F}t = m\vec{v_f} - m\vec{v_i}$

$\vec{v_f} = \frac{\vec{F}t + m\vec{v_i}}{m}$

$\vec{v_f} = 3.2\,m/s$

b) $\Delta\vec{p} = ?$

$\Delta\vec{p} = \vec{F}t$

$\Delta\vec{p} = -5.2\,kg\frac{m}{s}$

Physics 122

Friday, December 2/16

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

1. Second Chance -> SA - Projectiles: Monday, Dec. 5/16
   Worksheet - More Projectiles

2. Worksheet - Text: Page 608, PP #1-4
   Text: Page 623, PFU #23-27, 30
   } HW

3. Lab - SHM - Pendulum

Science 10

Friday, December 2/16

http://mvhs.nbed.nb.ca/

http://mvhs-sherrard.weebly.com/

1. Worksheet: 100 Acre Woods - HW for Monday
2. Velocity
3. Calculating Velocity
4. Roller Coasters

---

5. Return -> Physics Quiz #2
6. Representing Vector Quantities
7. Resultant Displacement
8. Activity - Adding Displacement Vectors
9. Average Velocity