Physics 112
Monday, November 6/17

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1. FA - Force Problem #3 -> D2.6.b and D2.6.c

2. Questions Re Newton's Laws?

3. SA: U2 - S1&2: _____Wed., Nov. 8_____
   Format: MC and Problems

4. Review: Worksheets: First and Second Law Problems

5. U2 - S3: Introduction to Momentum

6. Momentum

7. Impulse

8. Worksheet - Momentum (PP #29) and Impulse (PP #30-32)

Formative Assessment - Force Problems #3 and #4 (N6/17)

1. A cart is initially traveling across a surface with a velocity of 1.6 m/s. A net force of 87 N is exerted on the cart over a distance of 15.4 m for 4.1 s. What is the mass of the cart? **D2.6.b**

$\longrightarrow$ 2nd Law. $v\vec{v} \Longrightarrow v: \text{glt}$

$\vec{v_i} = 1.6 \text{ m/s}$

$\vec{F_{net}} = 87N$

$d = 15.4 m$

$t = 4.1 s$

$m = ?$

$\vec{a} = ?$

$\boxed{\vec{F_{net}} = m\vec{a}}$

$\left[\dfrac{\vec{a},}{\vec{F_{net}}} \right]$

$\vec{d} = \vec{v_i}t + \frac{1}{2}\vec{a}t^2 \quad \textcircled{1}$

$\left. \begin{array}{l} \vec{d} - \vec{v_i}t = \frac{1}{2}\vec{a}t^2 \\[2mm] 2(\vec{d} - \vec{v_i}t) = \vec{a}t^2 \\[2mm] \dfrac{2(\vec{d} - \vec{v_i}t)}{t^2} = \vec{a} \end{array} \right\} \textcircled{2}$

$\vec{a} = \dfrac{1.15 \text{ m/s}^2 \, 3s)}{A} \textcircled{1}$
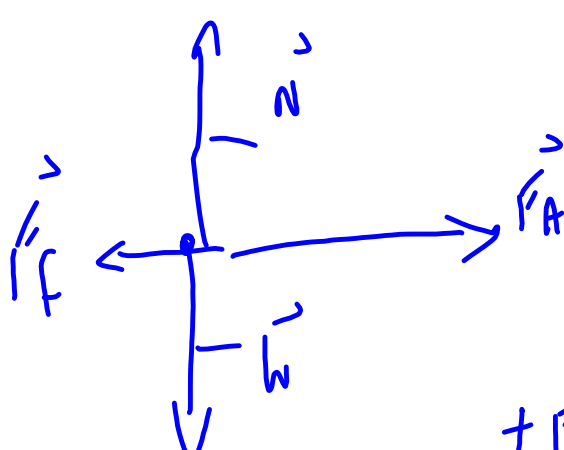
$\vec{F_{net}} = m\vec{a} \quad \textcircled{1}$

$m = \dfrac{\vec{F_{net}}}{\vec{a}} \quad \textcircled{1}$

$m = \underline{83 \text{ kg}} \textcircled{1} \; [W2.1]$

2. An object that has a mass of 36.0 kg is pushed along a horizontal
   surface with a force of 85.0 N. If the acceleration of the object is
   0.361m/s², what is the coefficient of friction between the object
   and surface? **D2.6.c**

FBD.

$\downarrow$ 2nd Law: =

$\vec{F}_{net} = m\vec{a}$

$+\vec{F}_A - F_f = m(+a)$

$\vec{F}_A - \mu N = ma$

$F_f = \mu N$

$N = W$

$W = mg$

$\vec{F}_A - \mu W = ma$

$\vec{F}_A - \mu mg = ma$

$$\frac{\vec{F}_A - ma}{mg} = \frac{\mu mg}{mg}$$

$\mu = 0.204$

Physics 122
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1. FA - Kepler's Third Law Problem

2. Questions?
   Worksheet - Universal Law of Gravitation Chapter 12
   (Page 580, PP#1-7)

3. Gravitational Field Strength

4. Calculating the Value of "g"

5. Orbital Speed

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6. Investigation 12-A: Orbital Speed of Planets

7. Geosynchronous Orbit

8. Periods of Orbiting Bodies

Formative Assessment - Kepler's Third Law

There is a region beyond Neptune known as the Kuyper Belt, which includes a lot of small objects, including Pluto. Pluto is itself 39.8 AU from the Sun. How long, in Earth years, does it take to orbit the sun once?

Science 10
Monday, November 6/17

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1. SA: Chem #3 - Date: <u>Thursday, Nov. 9/17</u>

2. Worksheet - Acids and Bases
   Worksheet - Neutralization Reactions

3. Review - SA - Chem #3

4. Roller Coasters and/or Practice/Help

Topics - SA: Chem #3

- be able to identify ionic compounds and molecular compounds
  - ionic compounds begin with a metallic ion or ammonium
  - molecular compounds begin with a nonmetal or metalloid
- be able to write the formulas and names for:
  (a) simple binary ionic compounds
      ie/ NaCl - sodium chloride
  (b) ionic compounds containing polyatomic ions
      ie/ $Mg(ClO_3)_2$ - magnesium chlorate
  (c) ionic compounds containing multivalent metals
      ie/ $FeBr_3$ - iron (III) bromide
  (d) ionic compounds containing multivalent metals and
      polyatomic ions
      ie/ Cu_3PO_4 - copper (I) phosphate
  (e) binary molecular compounds (prefixes are required for these
      compounds)
      ie/ P_2O_5 - diphosphorous pentoxide
  (f) binary acids (anions do not contain oxygen)
      ie/ HF - **hydro**brom**ic acid**
  (g) oxyacids (anions do contain oxygen)
      ie/ H_2SO_4 - sulfuric acid   [sulf**ate** -> sulfur**ic**]
      ie/ $HClO_2$ - chlorous acid   [chlor**ite** -> chlor**ous**]

- recognize the 7 elements that form diatomic molecules (H_2, N_2, O_2, F_2, Cl_2, Br_2 and I_2), S_8, and P_4

- identify acids, bases and salts

- identify reactants and products

- be able to identify **six** types of reactions (formation, decomposition, single replacement reactions, double replacement reactions, combustion reactions, and neutralization reactions)

- be able to balance chemical reactions using numerical coefficients

- be able to translate word equations

- be able to predict products