Science 10

Wednesday, March 21/18

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Redo Request Forms for SA Chem #1

1. FA - Counting Atoms - Tomorrow
2. Check
   Worksheet - Balancing Simple Chemical Equations - Front Side
3. More Examples - Balancing Chemical Equations
4. Worksheet - Balancing Simple Chemical Equations - Back Side
5. More Worksheets -> Balancing Chemical Equations

Worksheet - Balancing Simple.

1. $\underline{2}\,Mg + O_2 \rightarrow \underline{2}\,MgO$

reactants	products
Mg = 1 x 2 = 2	Mg = 1 x 2 = 2
O = 2	O = 1 x 2 = 2

2. $\_\,KClO_4 \rightarrow \_\,KCl + \underline{2}\,O_2$

reactants	products.
K = 1	K = 1
Cl = 1	Cl = 1
O = 4	O = 2 x 2 = 4

3. $\underline{2}\,H_gO \rightarrow \underline{2}\,H_g + 1\,O_2$

reactants	products
Hg = 1 x 2 = 2	Hg = 1 x 2 = 2
O = 1 x 2 = 2	O = 2

Physics 112

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Redo Request Forms - Redo: Friday at noon

1. FA - Uniformly Accelerated Motion (K3.9)
2. Uniformly Accelerated Motion (UAM) - Kinematic Equation #3
3. Example: UAM - Kinematic Equation #3
4. Quadratic Formula

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5. Uniformly Accelerated Motion (UAM) - Kinematic Equation #4
6. Example: UAM - Kinematic Equation #4
7. Worksheet - Motion Problems #10-18

Worksheet - Motion Prob.

#8. Sketch. ↑ up.

$\vec{v}_i = +90 m/s$

$t = 17 s$

$\vec{d} = +1.8 \times 10^3 m$ (2 SD) ~~1800 m~~ ↓

$\vec{v}_f = ?$

$\vec{d} = \frac{1}{2}(\vec{v}_i + \vec{v}_f)t$

$\frac{2\vec{d}}{t} = \vec{v}_i + \vec{v}_f$

$\frac{2\vec{d}}{t} - \vec{v}_i = \vec{v}_f$

$\frac{2(1.8 \times 10^3)}{17} - 90 = \vec{v}_f$

$\vec{v}_f = +1.2 \times 10^2 m/s$

Wb → $1.2 \times 10^2 m/s$ (up)

Rearranging for Time

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

Situation #1: $\vec{v}_i = 0\ m/s$

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

$$\vec{d} = \frac{1}{2}\vec{a}t^2 \leftarrow$$

$$2\vec{d} = \vec{a}t^2$$

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

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

Situation #2: $\vec{v}_i \neq 0\ m/s$.

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

→ quadratic equation

$ax^2 + bx + c = 0$

$$\frac{1}{2}\vec{a}t^2 + \vec{v}_i t - \vec{d} = 0$$

$$at^2 + bt + c = 0$$

quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$t = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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

$\vec{d}$ 2SDs

$\vec{a}$

$\vec{v}_i \neq 0\ m/s$

$t = ?$

$\vec{v}_f^{\,2} = \vec{v}_i^{\,2} + 2\vec{a}\vec{d}$

$\vec{v}_f = 1$ 3SDs. Not final

$\vec{v}_f = \vec{v}_i + \vec{a}t$

$t =$ 2SDs

Formative Assessment – Uniformly Accelerated Motion (K3.9)

A plane travels at 148 km/h for a period of time then accelerates for 15 s over a distance of 832 m. What was the plane's velocity after 15 s?

Physics 122

Wednesday, March 21/18

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1. Check
   Worksheet - Relative Velocity (Textbook Problems)

2. Worksheets - More Relative Velocity Problems

Science 122

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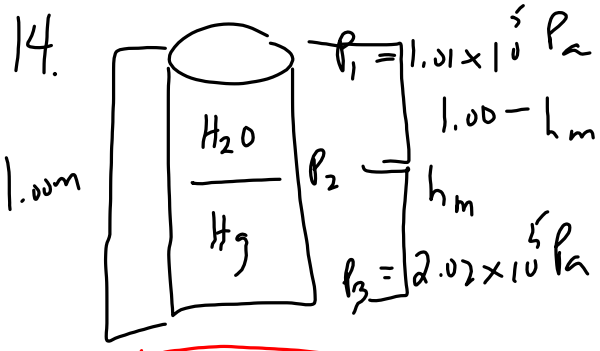
1. Check
   Worksheet - Pressure Problems (Cutnell Text)

2. Buoyancy and Archimedes' Principle

3. Worksheet - Archimedes' Principle

14.



$$P_2 = P_1 + \rho_{H_2O} g h_{H_2O}$$

$$P_3 = P_2 + \rho_m g h_m$$

$$P_3 = P_1 + \rho_{H_2O} g h_{H_2O} + \rho_m g h_m$$

$$P_3 = P_1 + \rho_{H_2O} g (1.00 - h_m) + \rho_m g h_m$$

$$P_3 = P_1 + \rho_{H_2O} g - h_m \rho_{H_2O} g + \rho_m g h_m$$

$$P_3 - P_1 - \rho_{H_2O} g = h_m (-\rho_{H_2O} g + \rho_m g)$$

$$h_m = \frac{P_3 - P_1 + \rho_{H_2O} g}{-\rho_{H_2O} g + \rho_m g}$$