Physics 112

Monday, October 16/17

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1. Questions? Worksheet - Motion Problems
   Worksheet - Freely Falling Bodies

2. FA - Kinematic Problem #2

3. SA: U1- S3 -> Topics (see Next Page)
   -> Format: Word Problems
   -> Friday, October 20/17

4. ABC Brainstorming - HW

5. Worksheets - Extra Practice

SA: U1- S3 -> Topics

1. types of motion - uniform motion and uniformly accelerated motion
2. use the relationship between the directions of velocity and acceleration to determine the motion of an object
3. word problems - solve using checklist to obtain full value
   - uniform motion - 1 formula
   - uniformly accelerated motion - 4 formulas
   - quadratic formula
4. acceleration due to gravity - symbol -> $\vec{g}$
   - on Earth $\vec{g} = -9.80\ m/s^2$
   - assuming no air resistance when working with freely falling bodies

Name: _____ Date: Oct. 16/17 Class Period: ___

ABC BRAINSTORMING

Topic: Kinematics

A acceleration	G	M	S stop
B base units	H	N	T
C constant	I	O	U
D displacement	J	P	V
E equation	K	Q	W
F final velocity	L	R	XYZ

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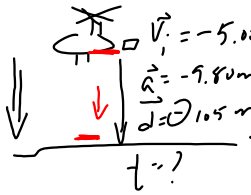
Extra Motion

"drop"

*3. Sketch

$v_h = 5.00\,m/s$



$\vec{v}_i = -5.00\,m/s$

$\vec{a} = -9.80\,m/s^2$

$\vec{d} = -105\,m$

$t = ?$

1st

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

+

quadratic formula

$t = \pm \boxed{\#}$

2nd

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

$\vec{v}_f = \boxed{\pm \ -}$

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

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

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

#2.

$\vec{v}_i = -5.00\,m/s$

$\vec{a} = -9.80\,m/s^2$

$\vec{d} = -105\,m$

$t = ?$

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

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

$\vec{v}_f = \sqrt{(-5.00)^2 + 2(-9.80)(-105)}$

$\vec{v}_f = -45.64\ m/s$

$\vec{d} = -25\,m$

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

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

$d = 25\,m$

$\vec{d} = +25\,m$

$t = \frac{-45.64\,m/s - (-5.00)}{-9.80}$

$t = 4.15\,s$

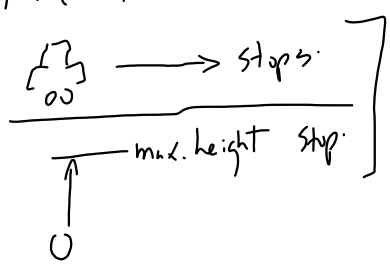
$\vec{v}_f = \vec{v}_i + \vec{a}t \ / \ \vec{a} = \frac{\vec{v}_f - \vec{v}_i}{t}$

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

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

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

final vel. = 0 m/s



1)

$\vec{a} = -9.8\ m/s^2$

$\vec{v}_i = +14.0\ m/s$

$\vec{d} = ?$ (+)

$t = 1.80\ s.$

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

$\vec{d} = (+14.0)(1.80) + \frac{1}{2}(-9.80)(1.80)^2$

3 SD

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word Prob

⋮

[acceleration due to gravity?
$\vec{a} = ?$]

ws → the acceleration due to gravity is → down.

Motion Prob. Freefall

#5.

$\vec{v}_i = -3.8\ m/s$

$\vec{a} = -9.80\ m/s^2$

$t = 12\ s$

$\vec{d} = \ominus 7.5 \times 10^2\ m.$

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

$\vec{d} = (-3.8)(12) + \frac{1}{2}(-9.80)(12)^2$

$\vec{d} = -7.5 \times 10^2\ m$ *

$-7.5 \times 1.2\ m$ (2 SD)

hw → _____

Physics 122

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1. Questions?
   Worksheet - Physics Texts Problems - Relative Velocity
   Worksheets - Relative Velocity (4)

2. FA - Intersection Problem

3. Questions?
   Worksheet - Momentum: Collisions in 1D

4. Types of Collisions

5. Worksheet: Collisions - Elastic and Inelastic - HW: Try #2, 4, 6

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6. Two Dimensional (2D) Collisions/Explosions

FA - Intersection Problem (16/17)

A car and truck approach an intersection along perpendicular roads. The velocity of the car relative to the ground is 9.27 m/s, W and the velocity of the truck relative to the ground is 4.83 m/s, S. Find the velocity of the truck relative to the car .

Science 10

Monday, October 16/17

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1. Questions?
   Worksheet: Combustion Reactions

2. FA: Identifying and Balancing Chemical Equations

3. SA - Chem #2 - Topics
   - Friday, October 20/1

4. Review: SA - Chem #2 - Will Check Tomorrow

5. ABC Brainstorming

6. Translating Word Equations to Balanced Chemical Equations

7. Worksheet: Translating Word Equations

8. Predicting Products

9. Worksheet: Predicting Products

Combustion Rxns.

3. $\_\_\_ C_3H_8 + \underline{5}\, O_2 \rightarrow \underline{3}\, CO_2 + \underline{4}\, H_2O$

hydrocarbon

$6 + 4 = 10$

Reactants	Products
1st C = 3	C = 1 × $\boxed{3}$ = 3
2nd H = 8	H = 2 × $\boxed{4}$ = 8
O = 2 × $\boxed{5}$ = 10	O = ~~3~~ 10

even #

6. $\underline{2}\, C_6H_{14} + \cancel{2}\left(\frac{19}{\cancel{2}}\right) \boxed{O_2} \rightarrow \cancel{6}\, \boxed{CO_2} + \cancel{7}\, \boxed{H_2O}$

12 14

$12 + 7 = 19$

R	P
C = 6	C = 1 × $\boxed{6}$ = 6
H = 14	H = 2 × $\boxed{7}$ = 14
O = 2	O = ~~3~~ 19

odd

△

Types of Reactions.

F - Formation

ele + ele → cpd 1prod.

D - Decomposition

1 react. cpd → ele + ele

SR - Single replacement

ele + cpd → ele + cpd

* *

DR - double replacement

cpd + cpd → cpd + cpd

* *

C - combustion

$C_{\square}H_{\square} + O_2 \rightarrow CO_2 + H_2O$

Worksheet Combustion. 10

3. $\_C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

odd

Reactants	Products
1st C = 3	C = 1 x 3 = 3
2nd H = 8	H = 2 x 4 = 8
3rd O = 2 x 5 = 10	O = 3 10

5. $\_C_5H_{12} + 8O_2 \rightarrow 5CO_2 + 6H_2O$ 16

R	P
C = 5	C = 1 x 5 = 5
H = 12	H = 2 x 6 = 12
O = 2 x 8 = 16	O = 8 16

6. $2C_6H_{14} + 19O_2 \rightarrow 12CO_2 + 14H_2O$ 19

2 x 19 = 38

hydrocarbon

R	P
C = 6	C = 1 x 6 = 6
H = 14	H = 2 x 7 = 14
O = 2	O = 19 odd

1/5

Science 10

FA: Identifying and Balancing Chemical Equations #1A (Oct. 16/17)

Name - _____

I. Indicate the type of each equation by printing F (formation), D (decomposition), SR (single replacement), DR (double replacement) or C (combustion) on the line provided.
II. Balance each reaction.

_____ 1. ____$MgCl_2$ + ____$AgNO_3$ → ____$Mg(NO_3)_2$ + ____AgCl

_____ 2. ____C_7H_{16} + ____O_2 → ____CO_2 + ____H_2O

_____ 3. ____NaF → ____Na + _____F_2

_____ 4. ____Li + ____$CuSO_4$ → ____Li_2SO_4 + ____Cu

_____ 5. ____Pb + ____ N_2 → ____ Pb_3N_4

_____ 6. ____CS_2 + ____F_2 → ____CF_4 + ____S_8

_____ 7. ____$CaBr_2$ + ____Na_3P → ____Ca_3P_2 + ____NaBr

_____ 8. ____C_4H_{10} + ____O_2 → ____CO_2 + ____H_2O

Science 10

FA: Identifying and Balancing Chemical Equations #1B (Oct. 16/17)

Name - _____

I. Indicate the type of each equation by printing F (formation), D (decomposition), SR (single replacement), DR (double replacement) or C (combustion) on the line provided.
II. Balance each reaction.

_____ 1. ____C_8H_{18} + ____O_2 → ____CO_2 + ____H_2O

_____ 2. ____Mg + ____KCl → ____$MgCl_2$ + ____K

_____ 3. ____$BaCl_2$ + ____NaOH → ____NaCl + ____$Ba(OH)_2$

_____ 4. ____KI + ____Br_2 → ____KBr + ____I_2

_____ 5. ____C_5H_{12} + ____O_2 → ____CO_2 + ____H_2O

_____ 6. ____Al + ____O_2 → ____Al_2O_3

_____ 7. ____$Pb(NO_3)_2$ + _____Mg → ____Pb + ____$Mg(NO_3)_2$

_____ 8. ____CH_4 → ____C + ____H_2