

Physics 112

Tuesday, June 7/16

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1. Test - Unit 3 -> Noon, IS or After School
 2. Reports
 3. Exam Review
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Part 1 - MC (30)
List # 1-30.
Part 2 - Prob. (8)
Formula Sheet.

Physics 112 - Exam Review

Kinematic Equations

how objects move.

$$\vec{v} = \frac{d}{t}$$

uniform motion } constant velocity

$$v_f = v_i + a t$$

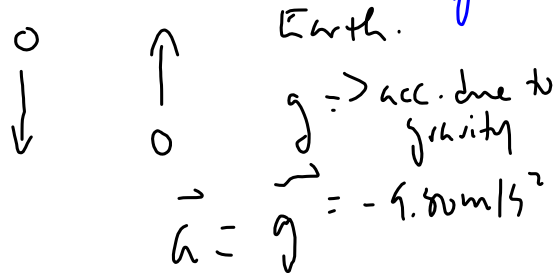
$$d = \frac{1}{2} (v_i + v_f) t$$

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

$$v_f^2 = v_i^2 + 2 a d$$

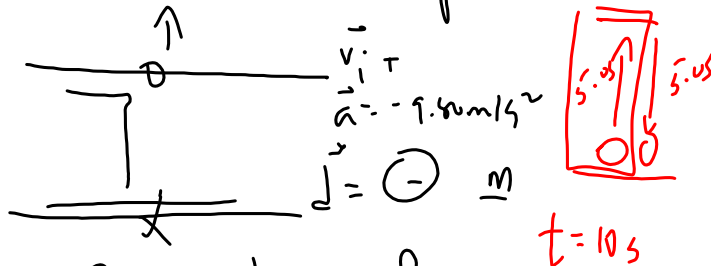
uniformly acc'd motion
 → acc. is constant
 → vel. is changing

Freely Falling Body Problem (Kinematic). June 2016

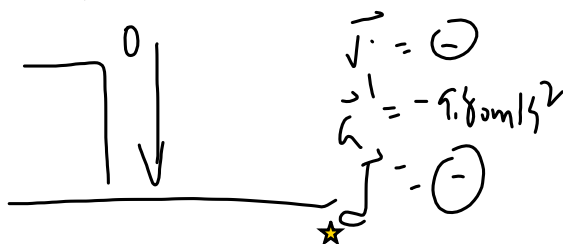


Possibilities: Drop (stationary) $v_i = 0 \text{ m/s}$
 Drop (moving) $\begin{cases} v_i = + \\ v_f = - \end{cases}$

Throw up $v_i +$



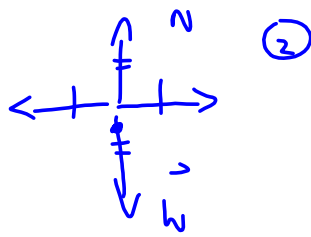
Throw downward.



Physics 112 - Exam Review

Newton's First Law Problem

$v = 0 \text{ m/s}$
 $v \rightarrow \text{constant}$

- * $\vec{w}, \vec{F}_A, \vec{F}_f, \vec{N}, \vec{T}$
- * FBD. 
- * Phis $N = W$
- * $F_f = \mu N, W = mg$

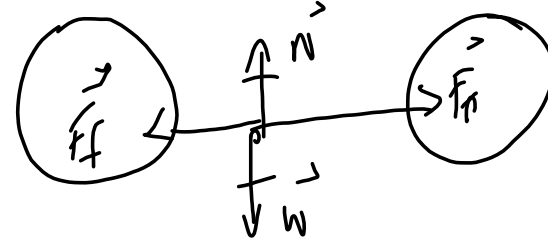
Newton's Second Law Problem

* acceleration

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

\swarrow + kinematic equation
 $\vec{v}_i, \vec{v}_f, \vec{d}, t$

\searrow individual forces
 $\vec{F}_A, \vec{F}_f, \vec{N}, \vec{w}$
 m, M
 FBD



$\vec{F}_{\text{net}} = m\vec{a}$
 $F_A - F_f = m(+a)$

Impulse-Momentum Theorem

Science 122

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1. Return Test - Nuclear Physics
 2. Worksheet #63
Worksheet #64
Worksheet - Assigning Oxidation Numbers
Worksheet - Redox Reactions and Electrochemistry
 3. Assignment - Electrochemistry -> Wed., June 8/16.
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Science 10

Tuesday, June 7/16

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1. Article - Risks Feared in Bioengineered Insects

- 2 Days Late

2. Assigment - Ecology -> wed.

3. Exam Review

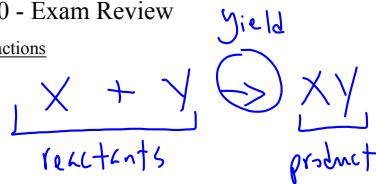
Science 10 - Last Assignment!

- ecology *- def*
 - ecological levels in an ecosystem: *def.*
 - organism
 - species
 - population
 - community
 - ecosystems
 - ecotones
 - biomes
 - biosphere*
- Simple.*
- ↓
- Complex*
- indicator species
 - abiotic and biotic factors
 - organisms:
 - producer
 - consumer
 - herbivore
 - carnivore
 - omnivore
 - decomposer
 - food chain
 - detritus food chain
 - primary energy source (sun)
 - photosynthesis (word and balanced chemical equations)
 - trophic levels:
 - primary producer (autotroph)
 - primary consumer (1st heterotroph - herbivore)
 - secondary consumer (2nd heterotroph - 1st carnivore)
 - tertiary consumer (3rd heterotroph - 2nd carnivore)
 - quaternary consumer (4th heterotroph - top carnivore)
 - food web
- flow of energy*
-

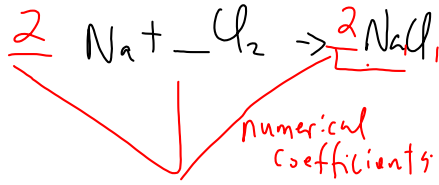
- biodiversity
- bioaccumulation and biomagnification (ie/ mercury, DDT)
 - toxin
 - dosage
 - duration
- sustainability
- types of substances: organic (proteins, sugars, fats)
inorganic (CO_2 , H_2O , NH_3)
- movement of energy (\longrightarrow) and matter (\bigcirc) through ecosystems
- matter and atoms flows cycles
- biogeochemical cycles
- reservoirs - atmosphere, oceans, earth
 $\text{N}_2 > \text{O}_2 > \text{C}$ atm. sphere.
- carbon cycle - key element in living things
 - photosynthesis and cellular respiration ✓
(word and balanced chemical equations)
 - concept map
- nitrogen cycle - needed to make proteins and DNA
 - nitrogen fixation ($\text{N}_2 \rightarrow \text{NO}_3^-$)
 - denitrification ($\text{NO}_3^- \rightarrow \text{N}_2$)

Science 10 - Exam Review

Chemical Reactions

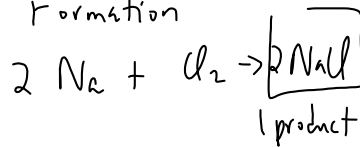


Law of Conservation of Mass

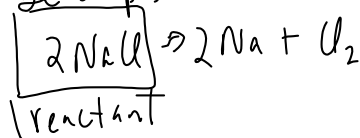


Types of Reactions.

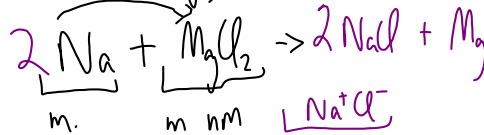
1. Formation



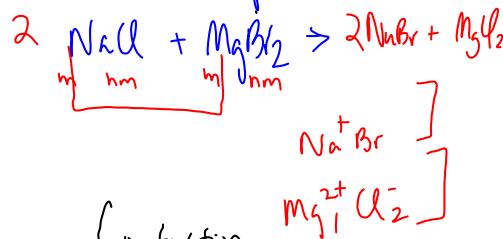
2. Decomposition Reaction



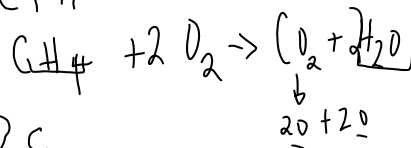
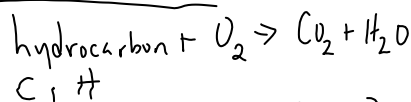
3. Single Replacement



Double Replacement



Combustion



- ① C
- ② H
- ③ O

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1. Worksheet - Textbook: Page 719, C15 - PP #27-31 (S. Circuits)
Textbook: Page 724, C15 - PP#32-35 (P. Circuits)

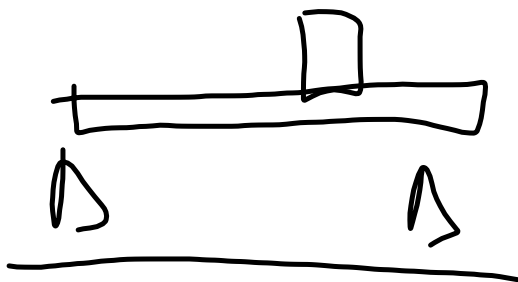
Textbook: Page 728, PP #36-37 } (C. Circuits)
Textbook: Page 749, PFU #33-34 }

2. Exam Review - Multiple Choice
Practice Exam
 3. Quiz - Complex Circuit - Thursday
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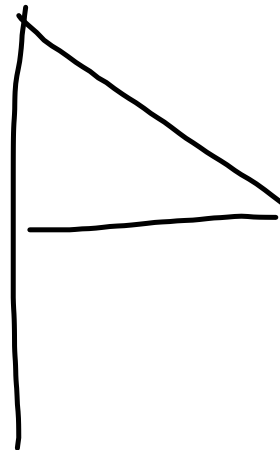
Physics 122 - Exam Review

Static Torque

1st.



2nd.



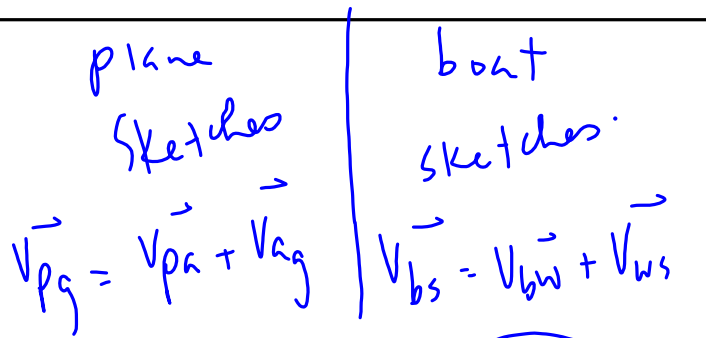
Labels.

1. Pivot point
 $\tau_{net} = 0$
- 2.
3. $+\tau_{F_1} + \tau_{F_2} - \tau_{F_3} = 0$
 \uparrow ccw \uparrow cw

$$\tau = r F \sin \theta$$

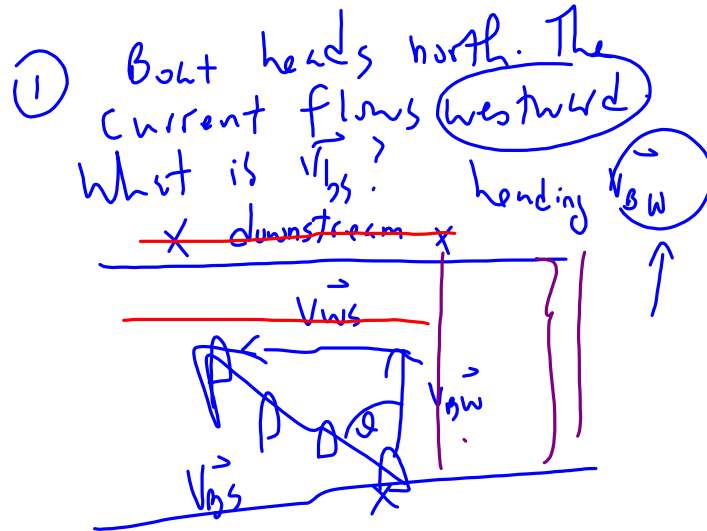
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Relative Velocity

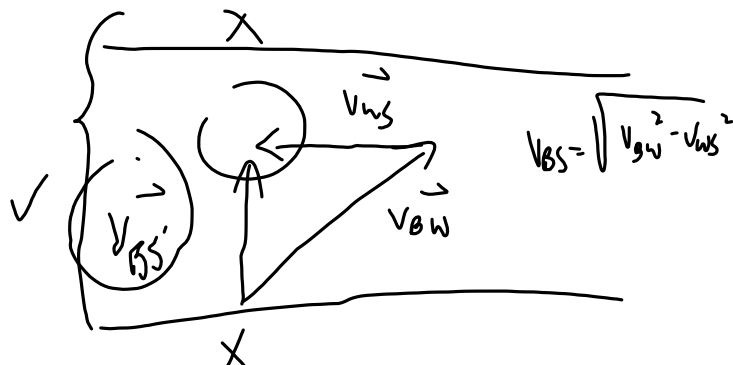


$$v = \frac{d}{t}$$

Boat.



- ② \vec{v}_{ws} westward.
 \vec{v}_{bs} → end up directly across from where it started on the south shore.

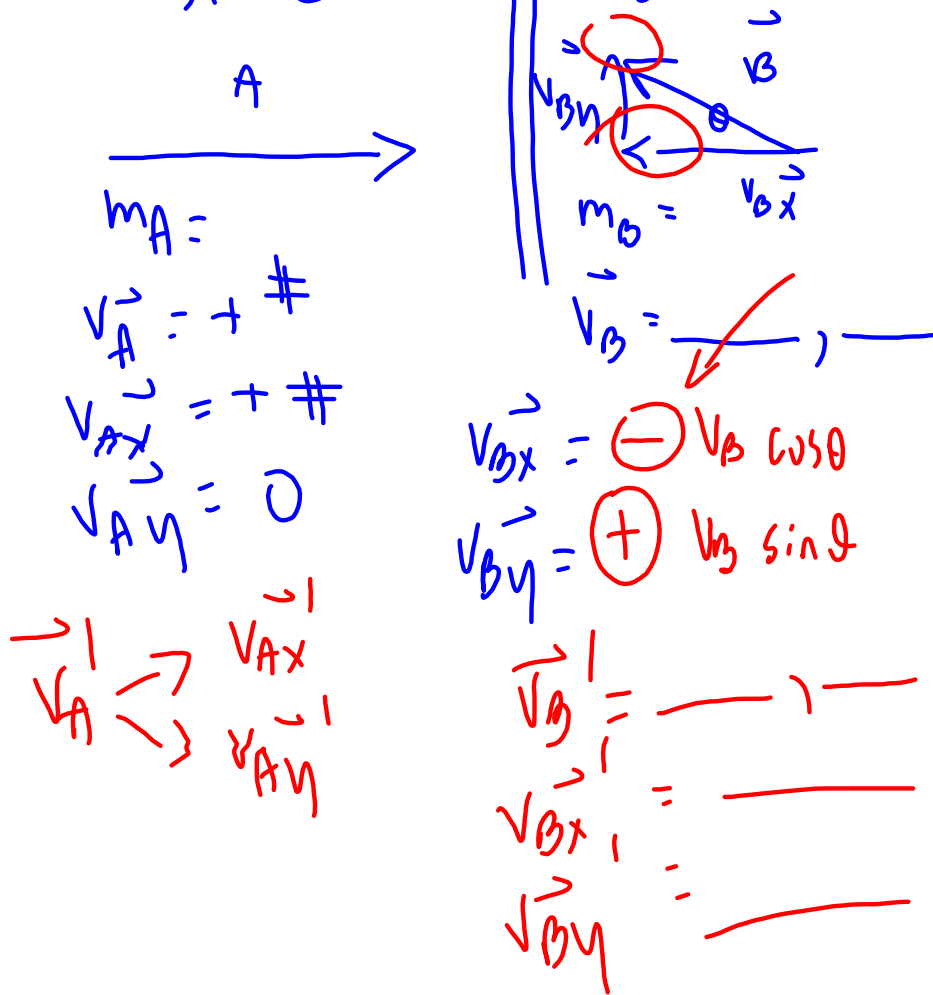


Physics 122 - Exam Review

Collisions/Explosions

2D

* directions.



x /

$$m_A v_{Ax} + m_B v_{Bx} = \dots m_A v_{Ax}^i + m_B v_{Bx}^i$$

y /

$$m_A v_{Ay} + m_B v_{By} = \dots m_A v_{Ay}^i + m_B v_{By}^i$$

Law of Pyth.
+ + kn 2.

Physics 122 - Exam Review
