Science 10

Tuesday, March 28/17

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1. Chemistry Test -> Thursday, March 30/17
2. Check -> Worksheet: Combustion Reactions
3. Handout - Chemical Reactions (5)
4. Worksheet: Identifying Reaction Types - HW
5. Review for Chemistry Test - To Be Continued in Class Tomorrow

Combustion

hydrocarbon + O_2 → CO_2 + H_2O

C, H, O, ...

CH_4 + $2O_2$ → $CO_2 + 2H_2O$

C = 1 | C = 1

H = 4 | H = 2 x 2 = 2

O = 2 x 2 = 4 | O = 3 → 4

6 + 4 = 10

3. $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

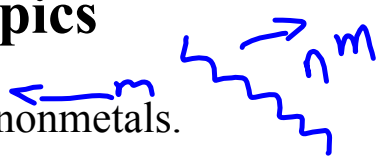
C = 3 ✓ | C = 1 x 3 = 3

H = 8 | H = 2 x 4 = 8

O = 2 x 5 = 10 | O = 3 / 10

Chemistry Test -> Topics

1. Identify elements as metalloids, metals or nonmetals.



2. Identify ions as monatomic, polyatomic or ions of multivalent metals.

3. Ionic Compounds
   - transfer of electrons
   - names to chemical formulas and vice versa

4. Molecular Compounds
   - sharing of electrons
   - names to chemical formulas and vice versa

nm : nm

* prefixes
* common
ie/ H_2O

5. Balance chemical reactions.

6. Identify types of chemical reactions:
   - formation
   - decomposition
   - single replacement
   - double replacement
   - combustion

Physics 112

Tuesday, March 28/17

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Midterm - Friday, April 7/17

1. SA - U1: S2 & 3 -> 2nd Attempt to get to 60% - Thursday at Noon
2. Free Body Diagrams (FBDs) - Continue
3. Worksheet - Drawing FBDs - HW
4. Next SA - U2 S1: Types of Forces and FBDs - ____TBA_____

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5. Concept: U2-S2 - Newton's Laws of Motion
6. Inertia
7. Newton's 1st Law: Law of Inertia
8. First Law Problems
9. Worksheets -> C4 - P151: PFU #26-28, 30-32, 34
   -> C4 - Introducing Forces - Extra Practice
10. Newton's 2nd Law: Law of F, m and a
11. Second Law Problems

P112 SA - U1 S2 + 3

Part 1

1. 3.0 m/s, W
2. 6.0 m/s
3. 1.0 m/s², E
4. t = 12 s
5. 86 m
6. 3.6 m/s
7. 1.7 m/s, W
8. 0.52 m/s², W
9. west

Part 2

1. $v_i = 47.6$ m/s
2. $\vec{a} = 15.9$ m/s², E
3. $d = 0.78$ m
4. $\vec{v}_f = 3.8$ m/s, N

Physics 122

Tuesday, March 28/17

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Midterm - Wednesday, April 5/17

1. Return -> FA - Relative Velocity
2. Collisions and Explosions in One Dimension - Continue
3. Worksheet: Momentum - Collisions in 1D - HW

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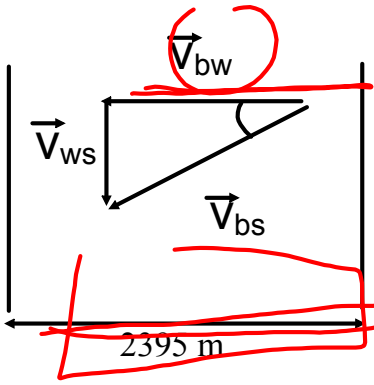
4. Types of Collisions
5. Worksheet: Collisions - Elastic and Inelastic

Formative Assessment - Relative Velocity

A catamaran whose speed in stillwater is 5.0 m/s heads west across an estuary. The current is 2.5 m/s south.

a) What is the velocity of the catamaran relative to the shore?

b) If the estuary is 2395 m wide, how long does it take the catamaran to cross the estuary?



b) $V = \frac{d}{t}$

$t = \frac{d}{V_{bw}}$

$\vec{V}_{bw} = 5.0\ m/s,\ W$

$\vec{V}_{ws} = 2.5\ m/s,\ S$

$\vec{V}_{bs} = ?$

$t =$

$\vec{V}_{bs} = \vec{V}_{bw} + \vec{V}_{ws}$

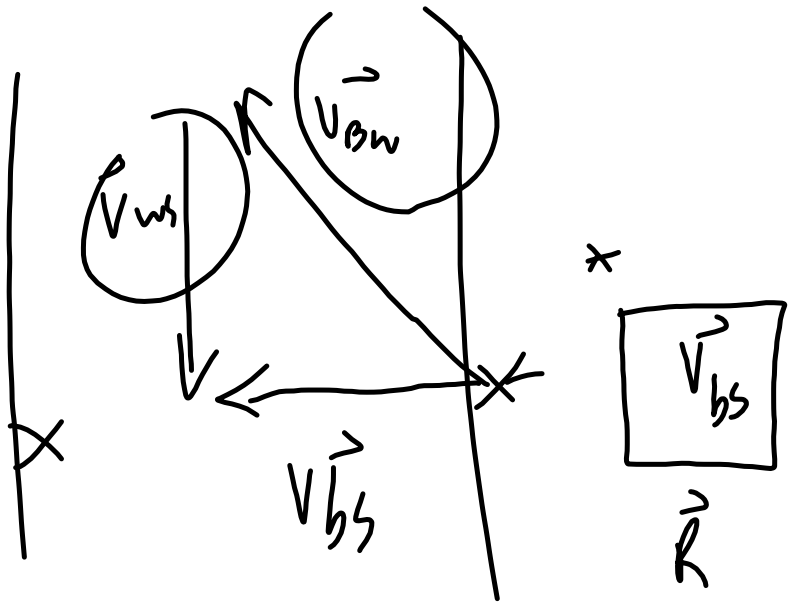
tip-to-tail

$\tan\theta = \frac{\square}{\square}$ $\quad \square V_{bs} = \sqrt{V_{bw}^2 + V_{ws}^2}$

$\theta = \square^{\circ}$ $\quad V_{bs} = \square\ m/s$

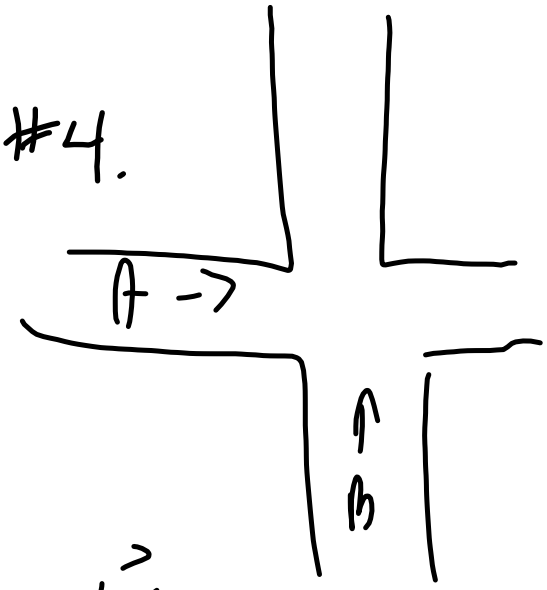
$V_{bs} = \square\ m/s$

$\vec{V}_{bs} = \_\_\_\_\ m/s,\ \_\_\_^{\circ}\ \_\_\_\ S\ of\ W$


$\vec{V}_{Bw}$
$\vec{V}_{ws}$
$\vec{V}_{bs}$
$\vec{V}_{bs}$
$\vec{R}$

Hdout. Rel. Vel #1

#4.



$\vec{V}_{AG} = 25.0 m/s, E$

$\vec{V}_{BG} = 15.8 m/s, N$

$\vec{V}_{AB} = ?$

$\vec{V}_{AB} = \vec{V}_{AG} + \vec{V}_{GB}$

$\vec{V}_{AB} = \vec{V}_{AG} \ominus \vec{V}_{BG}$

STOP

$\vec{V}_{AB} = \vec{V}_{AG} + (-\vec{V}_{BG})$

$\tan\theta = \frac{V_{BG}}{V_{AG}}$

$\theta = 32.3°$

SSLE

$V_{AB} = \sqrt{V_{AG}^2 + V_{BG}^2}$

$V_{AB} = 27.6 m/s$