

## Science 122

Wednesday, November 2/16

Midterm - Tuesday, Nov. 15/16

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1. Sink, Float or Hang - Complete Iceberg Example
2. Apparent Weight
3. Worksheet - Archimedes' Problems

4. Review - Hydrostatics

## Physics 112

Wednesday, November 2/16

Midterm - Wednesday, Nov. 9/16

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1. Conference Schedule
  2. Midterm Outline
  3. Worksheet - Extra Force Problems - Answer Key
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4. Atwood's Machine Problems - Continue
  5. Text - C10 - Page 485: PP#19-21
  6. Atwood's Lab
  7. Newton's Third Law of Motion
- 

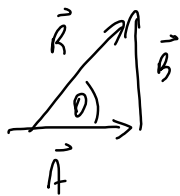
1.  $+1.3 \text{ N}$
2.  $0.172$
3.  $-1.3 \times 10^2 \text{ m/s}^2$
4.  $+1.22 \times 10^4 \text{ N}$
5.  $1.9 \times 10^7 \text{ m/s}$
6.  $8.8 \times 10^3 \text{ N}$
7. a)  $8.0 \text{ m/s}^2$   
b)  $0.16 \text{ m}$

8. a)  $-1.5 \times 10^2 \text{ N}$   
b)  $+1.7 \times 10^2 \text{ N}$
9. a)  $0.013$   
b)  $0.011$
10.  $+18 \text{ m/s}$
11. a)  $-1.2 \times 10^2 \text{ N}$   
b)  $0.094$   
c)  $1.2 \times 10^2 \text{ N}$
12.  $0.84$
13.  $0.33$

Notation/Directions.

Kinematic Equations  
(no choice)  
iel  $\vec{v}_f = \vec{v}_i + \vec{a}t$

Resultant Prob.



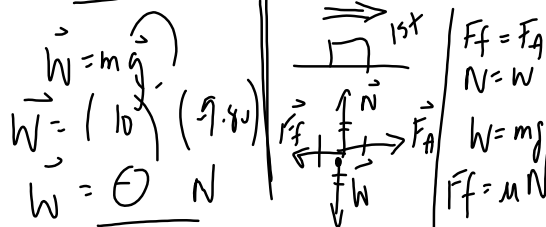
$$R^2 = A^2 + B^2$$

$$R = \sqrt{A^2 + B^2}$$

$$\tan \theta = \frac{B}{A}$$



$$F_f = \mu N$$



$$\vec{W} = m\vec{g}$$

$$\vec{W} = (10) (9.8)$$

$$W = \ominus N$$

$$F_f = F_A$$

$$N = W$$

$$W = mg$$

$$F_f = \mu N$$

$\vec{F}_{net} = m\vec{a}$	$\vec{F}_{net} = m\vec{a}$ + Kinematic eq. iel $\vec{v}_f = \vec{v}_i + \vec{a}t$	$\vec{F}_{net} = m\vec{a}$ $+ F_A - F_f = m(a)$
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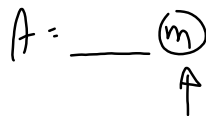
$$+ F_A - F_f = m(a)$$

$$F_A - \mu N = ma$$

$$F_A - \mu W = ma$$

$$F_A - \mu mg = ma$$

$$A = \frac{1}{2}bh$$



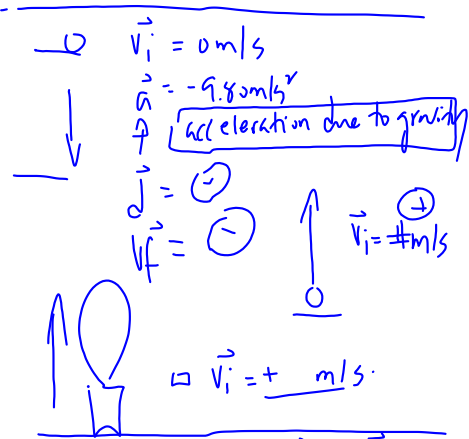
$$\vec{a} = \text{ } m/s^2$$

$$\vec{v} = \text{ } m/s$$

Physics 112  
Midterm Outline

1. Find  $\vec{R}$  analytically. (rubric) reverses.
2. Answer questions re a velocity-time graph.  $\rightarrow$  max  $\vec{v}$
3. Solve a freely falling body problem. max  $v$ .
4. Solve a first law problem.
5. Solve two second law problems

$\vec{a} = -2.0 \text{ m/s}^2$   $\left\{ \begin{array}{l} d, d \\ \text{ave speed} \\ \text{ave vel.} \\ \text{ave acc} \end{array} \right.$   
 $2.0 \text{ m/s}^2$  w



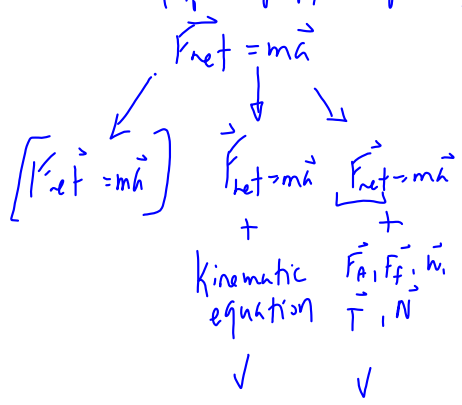
$v_f^2 = v_i^2 + 2a d$   
 $v_f = \sqrt{v_i^2 + 2a d}$   
 $v_f^2 = v_i^2 + a t^2$   
 $v_f = \pm \dots$  the final vel w/s limits down

Newton's First Law



Newton's Second Law

\* Acceleration (speeding up / slowing down)



Physics 122

Wednesday, November 2/16

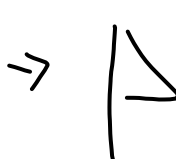
Midterm - Tuesday, Nov. 8/16

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1. Worksheets - 2D Collisions/Explosions
2. SA - U1 S3 & 4 - Relative Velocity and Collisions/Explosions  
 - Thursday, Nov. 3/16  
 - Format: MC and Problems
3. Experiment 9.1 - Conservation of Momentum (Page 55)
4. Midterm Outline ↳ Monday.

Midterm

1. Force → Push/Pull  
 Prob. → ~~Suspended Obj.~~  
           → Incline Plane } choice ①
2. Static Torque → See Saw ①  
                           →  ①
3. Relative Velocity → Boat/Plane ①  
                           → ~~Intersection~~
4. Collisions/Explosions → 1D ①  
   elastic/inel.  
   → 2D ①

65 minutes

## Science 10

Wednesday, November 2/16

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\* Deadline for Improving Chem Mark - Friday, Nov. 4/16

1. Rearranging Formulas - Continue
2. Worksheet - Rearranging Formulas

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3. Metric Conversions
  4. Worksheet - Metric Conversions
  5. Assignment - Next Week

Science 10  
**Assignment - Physics #1**

1. definitions: physics, kinematics, linear motion, physical quantity, SI System, defining equation
2. base units of distance, time and mass
3. determine a measurement's number of significant digits
4. round measurements to a specified number of SDs
5. use the Certainty and Precision Rules
6. rearrange equations for a specified variable