Physics 112

Thursday, January 7/16

http://mvhs-sherrard.weebly.com/

Textbook - ISBN

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1. Test - Unit 3

2. Final Exam - Topics
   - Format

3. Exam - Review Problems (64)

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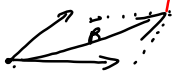
4. Wave Behaviors

Physics 112 - Topics - Final Exam

C2 and C3 — Kinematics c, k, μ, m, n, M
-> SI base/derived units and prefixes
-> significant digits
-> rearranging equations — $\vec{v}$ constant
-> uniform/uniformly accelerated motion — $\vec{a}$ constant
-> types of quantities (scalar and vector) — $\vec{V}$, V
-> resultant — 4N, 7N, 3N – 11N — $\vec{R}$, sketch, analyt.
  - minimum/maximum values
  - tip to tail/parallelogram methods
  - graphical/analytical methods



-> velocity-time graphs
  - time or velocity from the graph
  - maximum velocity/speed
  - acceleration/average acceleration (slope)
  - displacement/distance (area)
  - time stopped/reversed direction
-> comparison of velocity and acceleration directions to determine if an object speeds up or slows down — $\vec{v}$ (+), $\vec{a}$ (−) slow down
-> kinematic equations
-> freely falling body problems — ↓ 0 or ↑ 0 $\vec{a} = -9.80\,m/s^2$

C4 — Dynamics -> Velocity that is constant or an object at rest
-> types of forces
-> FBDs — $\vec{w}, \vec{N}, \vec{F_g}, \vec{F_f}, \vec{T}$
-> force problems (constant velocity) + (or at rest) (* FBD)

C5 — Dynamics - object accelerates
-> Newton's Three Laws of Motion
  - inertia
  - net force and acceleration — ① $\vec{F_{net}} = m\vec{a}$
  - action/reaction forces — ② $\vec{F_{net}} = m\vec{a}$ + kinematic eq.
-> force problems (acceleration) — ③ $\vec{F_{net}} = m\vec{a}$ and individual forces
-> momentum — $\vec{p} = m\vec{v}$ FBD
-> impulse — $\vec{J} = \vec{F}\Delta t$
-> impulse-momentum theorem — $\vec{J} = \Delta\vec{p}$ ‖ $\vec{F}\Delta t = m\vec{v}_f - m\vec{v}_i$
-> Atwood's machine/Fletcher's trolley

C6 -> Energy and Types of Energy, Work, P, Eff
-> work (done, not done, positive/negative)
-> types of energy (kinetic, gravitational, elastic)
-> reference line/zero line
-> Hooke's Law
-> force vs extension graph (spring constant) — $F = kx$ ← slope
-> work-energy theorems — $W = \Delta E_S$, $W = \Delta E_K$
-> power
-> efficiency

C7 — Law of Conservation of Energy
-> energy conservation — $E_{Ki} + E_{gi} + E_{ei} = E_{Kf} + E_{gf} + E_{ef}$

C8 and C9
-> pulse/~~wave~~ waves.
-> types of waves
-> parts of a wave
-> measures of a wave (eqns: A, f, λ, v)
-> wave problems — $v = f\lambda$, $v = \frac{1}{t}$, $v = \frac{\lambda}{T}$, $f = \frac{1}{T}$
-> wave behaviors
  - boundary behaviors
  - reflection
  - diffraction (light)
  - refraction
    - index of refraction (light)
    - speed of light in a medium
    - Snell's law
    - three cases
    - critical angle
    - total internal reflection

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multiple choice = 35
problems = 12

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Physics 122

Thursday, January 7/16

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1. Experiment 8.1 - Kepler's Laws -> 3 Days Late
   Worksheets

2. Check - Mass on Spring Example

3. Text: Page 608, #1-4
   Page 623, #23-27, 30

4. Pendulum

5. Text: Page 614, #5-8
   Page 623, #28, 29

6. Worksheet - SHM

Test - Unit 2 -> Wed. Jan 13/16

Science 10

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1. Assignment: Oh, What a Tangled Web We Weave
   Pass in for marking today.

2. Quiz - Ecology to Food Webs

3. Article: Keeping Threatened Amphibian Species Afloat
   - Pass in for Marking Monday, Jan. 11/16

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4. Sustainability

5. Types of Substances