Physics 112

Thursday, December 20/18

http://mvhs.nbed.nb.ca/

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

---

1. SA - U3S2 - Types of Energy and Work-Energy Theorems
   - Wednesday, Dec. 19/18

2. Progress Reports

3. Hard Copies - Topics and Format: Final Exam (Jan. 2019)
   Exam Review – Problems (January 2019)

4. Exam Review - Problem #2 - General Kinematic Problem

5. Concept Sheet - U3: S3&4

6. The Law of Conservation of Energy

7. Examples: Conservation of Energy Problems
   Complete Skateboard Problem for Tomorrow

---

8. Worksheet - C7 - Conservation of Mechanical Energy
   Page 287: PP# 1-4, 6-7

9. Worksheet – Extra Practice - Conservation of Energy

Exam Review - Problem #2 - General Kinematic Problem

Dec. 20/18

A car moving with a velocity of 3.45 m/s [W] accelerates uniformly for 5.21 s over a distance of 110 m. Determine the final velocity of the car.

sketch. $\vec{v}_f \longleftarrow$ car $\vec{v}_i$

$\vec{v}_i = 3.45\text{ m/s [W]} = -3.45\text{ m/s}$

$t = 5.21\text{ s}$

$\vec{d} = \ominus 110\text{ m}$

$\vec{v}_f = ?$

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

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

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

$\frac{2\vec{d}}{t} - \vec{v}_i = \vec{v}_f$

$\vec{v}_f = -38.8\text{ m/s}$

W.S. The final velocity is 38.8 m/s, W.

38.8 m/s [W]

Physics 122

Thursday, December 20/18

http://mvhs.nbed.nb.ca/

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

1. Questions?
   SA - U2 S3&4 - SHM and Projectile Motion

2. Topics/Format - Final Exam (January 2019)

2. Questions?
   Worksheet - Charge and Coulomb's Law (Two Objects)

3. Coulomb's Law - Three Charges

4. Coulomb's Law - Three Charges with Angles

5. Textbook: Page 640, #7, 8 -> Coulomb's Law - Three Charges

Physics 122 - Topics - Final Exam

Unit 1

-> force problems
- push/pull
- suspended objects
- incline plane

-> static torque
- vertical forces
- forces involving angles

-> relative velocity (boat, plane and intersection problems)

-> collisions
- 1 D
  - simple
  - elastic/inelastic
- 2D
  - collision/explosion

Unit 2

-> circular motion
- horizontal circular motion
- banked and unbanked curves

-> Kepler's Laws (3)

-> Law of Universal Gravitation

-> g, v and T of satellites, moons, planets, etc.

-> SHM
- pendulum
- mass on a spring

-> projectiles
- horizontal
- fired at an angle

Unit 3

-> electrostatics
- types of electrical charges (2)
- transfer of charge between identical objects/conservation of charge
- charging objects
  - by electrification by friction
- electric force - Coulomb's Law
  - 2 charges
  - 3 charges
- electric fields
  - diagrams
  - electric field strength
- electric potential energy
- electric potential difference

-> electric current
- conventional current/electron flow
- circuit symbols
- open/closed circuits
- ammeters/voltmeters
- resistance in a wire?
- Ohm's Law
- power
- circuits
  - VIR chart
  - series
  - parallel
  - complex

January 2019

Format - multiple choice = 20
problems = 10

---

1. push/pull OR inclined plane problem
2. circular motion OR relative velocity
3. static torque problem
4. 2D collision/explosion
5. projectile fired at an angle
6. Law of Universal Gravitation and g, v and T of satellite or planet, etc.
7. SHM - mass on a spring
8. Coulomb's Law - 3 charges
9. electric field - diagram, magnitude and direction
10. circuit - complete VIR chart

Science 10

Thursday, December 20/18

http://mvhs.nbed.nb.ca/

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

1. Science Articles - Complete 8 by the end of the semester.
   Optional Assignment - Graphing Characters (Max. 2)
   - Due: Dec. 21/18

2. Tomorrow -> Return: SA - Physics #2

3. Roller Coasters