Physics 112

Tuesday, January 16/18

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

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

1. Questions?
   Worksheet - Refraction: Problems

2. SA - U4:S1&2 -> Wednesday, January 17/18
   -> Fill in Blanks
   Refraction Diagram
   Problems

3. Exam Review - Problem #7

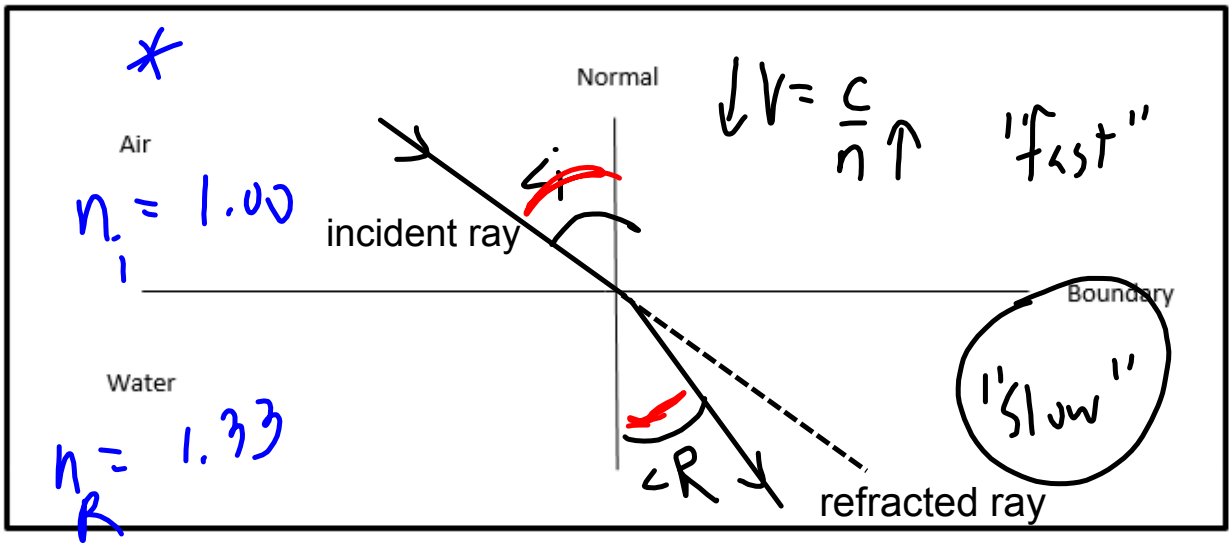
Sample Diagram fo Refraction

In this case of refraction, $\angle i \neq 0^o$ and $n_i < n_R$.

a) Label the index of refraction of the first medium n_i and the index of refraction of the second medium n_R.

b) Draw and label the incident ray and refracted ray.

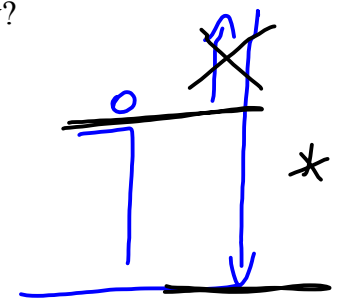
c) Label the angle of incidence $\angle i$ and the angle of refraction $\angle R$.



P112 - Exam Review - Problem #7

Free fall problem. * directions.

A cliff diver begins her dive by jumping vertically upward. What was the diver's initial velocity if it takes her 5.4 s to hit the water 112 m below?



$\vec{a} = -9.80\ m/s^2$

$* \vec{v}_i = ?$

$t = 5.4\ s$

$\vec{d} = \ominus 112\ m$

$$2\vec{d} = 2\vec{v}_i t + \left[\frac{1}{2}\vec{a}t^2\right]2$$

$$2\vec{d} = 2\vec{v}_i t + \vec{a}t^2$$

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

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

(+) $$\vec{v}_i = \frac{2(-112) - (-9.80)(5.4)^2}{2(5.4)}$$

$$\vec{v}_i = +5.7\ \frac{m}{s}$$

WS -> The initial velocity was 5.7 m/s, up.

Physics 122

Tuesday, January 16/18

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

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

1. SA - U3 - S2 - Electric Circuits -> Tuesday, January 16/18

P122 - Exam Review - Problem #3

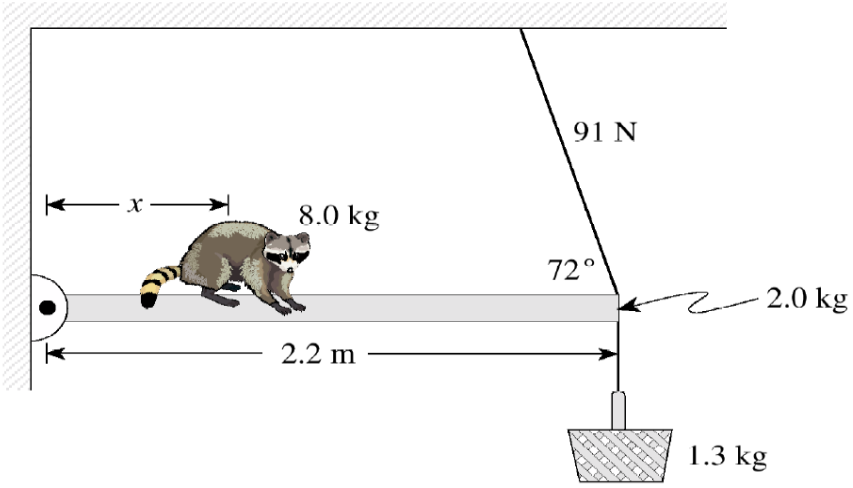
0.16

A concrete block accelerates down a 34^{o} slope at 4.2 m/s^2. Find the coefficient of friction between the block and slope.

P122 - Exam Review - Problem #4

1.8 m

A hungry 8.0 kg raccoon walks out on a 2.0 kg, 2.2 m long uniform beam in an attempt to reach a 1.3 kg food basket hanging at the end. A cord that can withstand 91 N is used to support the beam at the end as shown.



What is the maximum distance, x, the raccoon can walk out onto the beam before the cord breaks?

Science 10

Tuesday, January 16/18

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

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

---

1. Worksheet: Position vs. Time Graphs
   Worksheet: Velocity vs Time Graphs
   Worksheet - Acceleration Problems

2. SA - Physics #3 -> Wednesday, January 17/18
   -> Review

3. Roller Coasters - Due: Thursday, Jan. 18/18

4. Practice Exam * Velocity-Time Graph

---

https://buggyandbuddy.com/straw-rockets-with-free-rocket-template/

Topics - SA: Physics #3

1. definitions: scalar quantity, distance, speed, vector quantity, reference point, position, displacement, constant velocity, resultant displacement, average velocity, acceleration

2. directions: positive (east, north, up , right)
   negative (west, south, down, left)

3. physical quantities: type, symbol and unit

4. determine the slope of a line using:

$$m = \frac{\text{rise}}{\text{run}} \quad \text{OR} \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

5. identify types of motion:
   1. uniform (constant velocity)
   2. uniformly accelerated motion (changing velocity)

6. answer questions about position vs. time graphs

7. draw a velocity vs. time graph given a position-time graph

8. answer questions about velocity vs. time graphs

9. describe the motion of an object by comparing the directions of the object's velocity and acceleration

10. solve word problems:
    (i) displacement
    (ii) constant velocity
    (iii) average velocity
    (iv) acceleration